



IDENTITY

DECEMBER 2015

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BANKING



COVER STORY

2015: Digital Identity Takes Center Stage

2015 was a year in which the case for generating, securing and protecting the digital identity of a consumer was made abundantly clear.

And, according to Martin Ferenczi, President/North America for global technology company Oberthur Technologies, a year where a lot of key “foundational” work was put in motion. Yet, he acknowledged, one in which the sophistication of the hackers only underscored the need for everyone in the financial services, mobile and security ecosystems and who are entrusted with authenticating the identity of a person, must step up and do more.

Why The Anthem Hack Was More Dangerous Than Target's Breach

The year was barely a month old when the world was starkly reminded of how vulnerable all data is when hackers put their minds and their talents toward compromising it.

The hack of health insurer, [Anthem](#), put at risk a variety of personal information for some 80 million people. Names, birthdays, medical IDs/Social Security numbers, street addresses, email addresses and income data were all exposed, making the Anthem breach every bit as big as the Target breach of 2013.

But potentially much more damaging.

Credit card numbers, like those confiscated in the Target breach, allow fraudsters to commit fraud online until the issuers and processors get tipped off, mostly by consumers who call their issuers when they see fraudulent charges on their statements.

Personally identifiable information like SSNs, along with names and address and birthday information, allow a fraudster to manufacture a brand new identity and do much more harm, unnoticed, for potentially much longer periods of time.

And shine a bright light on what businesses must do to better protect consumer's data in the future – which it did in February in Washington, D.C.

President Obama signed an Executive Order on Cybersecurity and Consumer Protection at the [White House Summit on Cybersecurity](#) in February which includes a framework for how all businesses large and small should optimize their cybersecurity investments. For small organizations, the framework serves as a roadmap and creates a common vocabulary that can be used to effectively communicate on matters of cyber risk management. This [framework](#) is also emerging as an important tool for technologists to communicate with organizational leaders on how to think about and manage cyber risks.

But perhaps the aspect with the greatest long-term impact – as well as its most controversial – is the order's position on data sharing.

The order encourages – but doesn't mandate — the sharing of cybersecurity threat information among companies and the federal government. Intel, Apple, Bank of America, U.S. Bank, AIG, and Walgreens are among those who've committed to adopting the framework, with the hope that better data, sooner, can blunt the system-wide impact of the damage done by cybercriminals.

COVER STORY cont'd

“The Most Dangerous And Pivotal Moment Of 2015”

As winter turned to spring and then summer, we learned of one of the [biggest government hacks](#) ever – the Office of Personnel Management (OPM) – which compromised names, addresses, SSNs and other sensitive information for current and former federal employees and contractors, as well as the applicants for federal jobs and individuals listed on background check forms of over 22 million users. The repercussions of this hack are still being felt. Months after the hacks were revealed, millions of users still had not been notified that their [data was exposed](#).

Ferenczi, who himself was one of the 22 million whose credentials were compromised, called it “one of the most significant” moments in the 2015 narrative on the need to protect sensitive personal information from unauthorized access.

“The personal impact that that the [OPM] hack can have is very high. This was a very dangerous hack because we just don't know what the ultimate consequences of it are yet,” Ferenczi explained. “The lack of certainty of what, or when or if the hackers are going to do with that information is what makes it significant.”

Ferenczi emphasized that “financial hacks” are never welcome and highly inconvenient but the consumer has protection from their issuer of any downside. Personal information in the wrong hands, he says, can be “life changing.”

“What happens,” Ferenczi went on to say, “if a busy business executive finds himself on a no-fly list? How long will it take for that situation to get resolved – and what other situations does that imply will need to be addressed in the future?”

But playing Monday morning quarterback in this case, Ferenczi acknowledged, is hard to do and not even entirely helpful at this point since the damage has been done. But it does, he suggest, raise a number of questions about the [overlooked security vulnerabilities](#) and lack of security controls for those who can access mission critical databases in the Federal Government and all enterprises, and how individuals are authenticated and granted access.

Ferenczi believes that as new information regarding the hack is known, the debate over access to enterprise systems should be structured, monitored and managed will only intensify, including how to implement new security protocols such as biometrics.

Ferenczi, a big believer in biometrics who believes that it is one of the 2016 trends to watch, says that having fingerprint access to systems (or mobile phones even) and then having those fingerprints stored in a database that can be compromised, only sets up fraudsters to have the keys to the digital identity kingdom in the event of a breach. Biometrics, he concludes can be a useful authentication protocol but only if deployed appropriately.

“What we need to embrace in order to address Cyber security is multi-factor authentication like some large banks have implemented in their mobile Banking applets creating “the right phone with the right finger print” as noted by Ferenczi. “Or, what President Bush implemented with HSDP-12 when it defined the standard for the PIV card which incorporated the concept of “Match-On” verifying to the right person is using their card to enter a high security location with “match-On” biometric verification. Or, what ICAO developed when it created the standard for the Electronic Passport integrating facial recognition as a feature of its security architecture “, added Ferenczi

This concept has been used by multiple Mobile Phone manufacturers who are integrating Biometric Finger Print sensors on their phone and employing “Match-On” techniques to assure that only the owner of the phone is able to open the phone.

COVER STORY cont'd

Tightening Up Enterprise Controls

Recognizing the need to tighten access controls to government agency data and making authentication robust, The White House issued a government-wide [‘Cybersecurity Sprint’](#) in late summer which gave agencies a narrow window to secure their systems. As a result of the effort, federal civilian agencies reportedly increased their use of "strong authentication for privileged and unprivileged users" from 42 percent to 72 percent, White House Chief Information Officer Tony Scott confirmed in a [blog post](#).

At least it's a start.

But government entities don't seem to be the only institutions reexamining how they authenticate consumers and grant access to facilities and systems. Environments where consumer data may be most vulnerable, like universities and workplaces, are also drawing increased scrutiny from enterprise risk and security professionals and senior leadership alike.

With over 500 data breaches reported by [universities](#) from 2006 to 2013, an FBI white paper titled [“Higher Education and National Security”](#) found that hackers routinely deploy malware and phishing emails to breach firewalls. According to the FBI, U.S. universities receive large numbers of unsolicited requests for information and millions of hits on their Web servers on a daily basis. This places a burden on them to make their systems secure and deploy monitoring tools, starting with multifactor authentication, to secure access to systems and to prevent breaches.

When Commerce Gets Connected To Everything, Everywhere

As technology expands access to data and the use cases for payments and commerce via the proliferation of Internet of Things (IoT) and [smart devices](#), so too comes the question of how to secure the digital identities of consumers at the end points of the new and vast network of devices.

Debates rage over what constitutes an “identity” in a world where machines interact without human intervention and every connected device can initiate a transaction of some kind that results in a commerce transaction. The requirement for those interactions to be secure is only half of the battle. Ensuring that those identities are also interoperable and capable of easily interacting with a multitude of relying parties is as important for the Internet of Things to reach its full potential.

Ferenczi says that technologies like eSE – or embedded secure elements – is just one of the solutions he considers foundational to supporting a [robust and secure IoT vision](#). In a world in which machine to machine interactions trigger the flow of data between endpoints, securing data in the cloud isn't enough, he says. Ferenczi emphasizes that protecting those endpoints is the only way that the data being passed between those end points can be considered reliable. Embedding chips at those endpoints is the most reliable and secure way, he believes, to protect the integrity of the data being passed thru them.

“Finally – We Have A Global Standard”

Of course, one of the most significant stories of the year was the migration to EMV or chip cards in the U.S. The EMV migration's benefit is its key promise of a significant uptick in card protection at the physical point of sale by being better able to authenticate the consumer when a card is presented. Visa, for instance, [noted](#) that EMV technology is the most effective defense against counterfeit fraud in a physical commerce environment.

COVER STORY cont'd

Ferenczi views the move in the U.S. to embrace EMV as the recognition of EMV as the global standard for authenticating consumers in a card present world. Calling it one of the “bricks” in the foundation for securing the identity of a consumer, Ferenczi believes that the use of EMV in mobile payments schemes like Apple Pay, Android Pay and Samsung Pay will only accelerate the degree to which merchant’s install EMV terminals. Ferenczi also sees a future that will soon include dual interface cards, and PIN both for debit and credit.

“In the U.S. in 2015, we saw about 5 percent of the total cards as dual interface cards,” Ferenczi explained. “In 2016, you should expect to see that double.” Ferenczi went on to say that 40 percent of the EMV cards in the world are dual interface, a percentage boosted somewhat by China’s mandate that cards issued be both chip and contactless.

As important as EMV is as a foil to card-present fraud, one of EMV’s great criticisms is its inability to protect the [next great fraud frontier](#): online fraud.

In every country in which EMV has been deployed, offline fraud has diminished while online fraud has increased. Ferenczi acknowledges that, and suggests that dynamic cards, like Oberthur Technologies’ [MotionCode card](#), were developed to bridge that gap by making a physical EMV card digital.

Motion Code technology involves a card with dynamic CVV displayed on a screen that changes every hour. The theory is that consumers with a Motion Code card are protected from online fraud since the CVV changes so often that even if a fraudster were to get access to their card credentials, they would be unusable.

The U.S. may be the latest geography to make EMV news and the largest card market in the world, but it’s certainly not the last bastion of EMV card compliance. India is among the next large market expected to embrace the EMV mandate, with its largest national bank, State Bank of India [announcing](#) earlier this month a complete migration of its new debit cards to secure EMV cards.

And in a highly compressed timeline.

The Reserve Bank of India first issued the EMV [mandate](#) requiring banks to convert magstripe cards to chip cards in February 2013, with a deadline of June 2013.

Making Digital Identity Interoperable

Of course, we know well that the most common – yet weakest way – that identities are “secured” digitally today is via passwords.

In an effort to move authentication beyond passwords, The World Wide Web Consortium (W3C) embraced the FIDO Alliance (Fast IDentity Online) specifications to making secure multifactor authentication a “built-in” feature on all browsers and platforms. It is expected that 2016 will see a more consolidated focus on work.

Ferenczi believes that FIDO’s work is critical to making digital identity interoperable.

The FIDO specifications being incorporated consists of a two-factor protocol using a PIN or biometrics to link the user to the authenticator which will then allow the relying party (e.g. Google, PayPal, Bank of America) to assure that only that unique authenticator is present when they are encountered online.

COVER STORY cont'd

In addition to FIDO's efforts, other groups like the [OpenID Foundation](#) are hard at work creating alternatives and complements. A protocol for two-factor authentication is in the process of being combined with the existing OpenID Connect Standard, a single sign-on and identity profile mechanism. Enterprises and service providers will have the choice to mix and match these standardized security solutions and tailor them to their needs.

As part of this effort, the newly formed [iGov Working Group](#) at the OpenID Foundation was established to foster public-private partnerships in order to "allow users to authenticate and share consented attribute information with public sector services across the globe." The goal is to have a standardized integration with "public sector relying parties in multiple jurisdictions."

The group has 10 participating governments and members from countries like Chile, Sweden, Peru and New Zealand. In addition, the National Strategy for Trusted Identities in Cyberspace (NSTIC) initiative has disbursed more than \$34 million in [15 pilot programs](#) to work with the private tech sector to ensure secure access and privacy of data.

Faster, Secure Payments Ensured

Finally, the march toward [faster payments worldwide](#) also underscores the need for a robust protocol to authenticate senders and receivers in a world where real-time and or instant payments are being developed and deployed.

There are 18 countries around the world which have adopted some form of "faster payments" initiatives. In the U.S. a range of solutions are being proposed and/or deployed. Phase One of [NACHA's Same Day ACH](#), will be deployed in the fall of 2016 and The Clearing House Real-Time Payments initiative, which was recently announced is set to have something in place later in the year as well, and the clearXchange/Early Warning acquisition is likely to create another real-time payments option for consumers, businesses and governments, as well.

Further, there are a number of other players and solutions that seek to play a role in expediting the sending and receiving of funds between parties. Blockchain and distributed ledger technologies seek to create new "permissionless" rails that rely on algorithms and technology protocols to move money securely and authenticate relying parties.

But at the heart of all of these proposals is not only making payments faster, but doing so not at the expense of the security of those payments, and the authentication protocols of the parties to the transaction.

What To Look (Out) For In 2016

As the year drew to a close, we saw the European Union officially set its long-debated "[Network and Information Security Directive](#)" law in motion. The EU data protection reform establishes stringent security and reporting guidelines companies must follow to ensure the digital infrastructures for essential services — like those in the transportation, energy, health and finance sectors — are strong enough to withstand cyberattacks.

For [U.S. companies](#) operating in Europe, the new law imposes tougher penalties related to collecting and analyzing big data from sensors, apps and other sources, specifically when it comes to user profiling and data mining. While Web firms may be subject to less rigorous obligations than critical operators like airports or hospitals, the measure will still impose sanctions on Internet companies such as Google, Amazon and eBay (but not social networks) if they fail to report serious incidents to national authorities.

The challenge to those entrusted with securing data and access to it, it seems, will only grow stronger.



COVER STORY cont'd

In 2016, regardless of the innovation that payments – and mobile payments in particular — will drive, the focus will be on creating an environment secure enough where innovation can flourish yet the credentials that underpin it remain secure, interoperable and scalable.

"The U.S. has accelerated its movement to security but there are many more bricks needed to create the ultimate foundation of security," Ferenczi concluded. "We are far from being complete and there are major areas that need to improve."

And for anyone looking for the "silver bullet" to quickly and easily create secure protocols for protecting data and authenticating consumers? That, Ferenczi says is neither possible nor practical.

"We're looking for the ultimate [authentication] mousetrap, but there is no ultimate mousetrap," Ferenczi says. "We are facing hackers who are as good and as smart as we are on the other side trying to do malfeasance."

Instead, he says, what's key is to make the job of cybercriminals more difficult – and that does not come in the form of a simple solution. And that he said, is all about layering – creating a strong foundation for protecting sensitive information, and then building on top of that continually to create "air tight authentication."

Brick by brick.

THE DIGITAL IDENTITY ECOSYSTEM

The Digital Identity Ecosystem lists the new providers added in each of the four key digital identity capability areas. *Allweb Technologies, BioCatch, CyberExtruder, Heartland Payment Systems, Ping Identity and Sequent* were added this month.

STORE

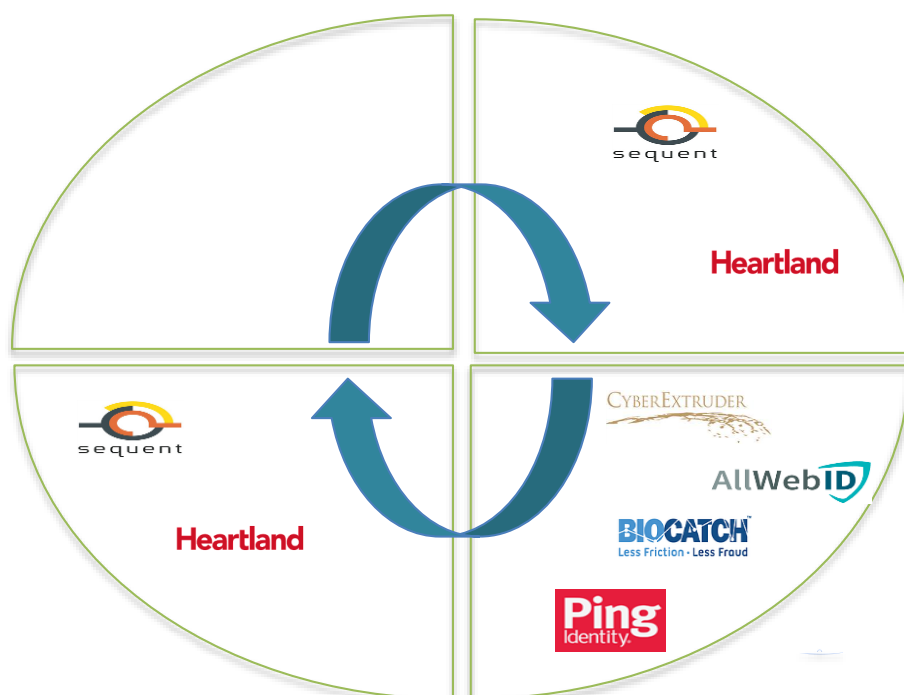
Safely store sensitive information

- Big data and analytics
- Cloud storage
- Data encryption
- EMV card and chip providers

INTERACT

Manage the process of moving sensitive data between entities

- End-to-end encryption services
- Networks/gateways/ecosystem
- Payment services



GENERATE

Create account number, ID or credentials used to access account or transaction

- Certification authorities
- Tokenization providers

SECURE

Ensure the user is who they say they are

- EMV and smart card technology and software solutions
- Data and device profiling
- Biometric companies

NEWS AND TRENDS

Generate

Creating the identities and credentials that allow individuals to digitally identify themselves in a host of environments

Oberthur NFC SIM card dragonFly achieves new certification

Oberthur Technologies announced that its NFC SIM card dragonFly is now MIFARE4Mobile v2.1.1-certified. Dragonfly covers payment, transport and telecom services. Through new certification, customers can offer their end users and partners a solution to [dematerialize transport tickets](#), and corporate badges on a SIM card for an improved end user experience.

Gemalto recognized as a Representative Vendor for issuer tokenization

Gemalto has been recognized as a Representative Vendor for its [issuer tokenization](#) solution in Gartner's industry Market Guide. Its solution secures mobile payment by enabling credit and debit cards to be securely loaded into mobile devices, while at the same time simplifying the enrollment of card portfolios for banks and their issuing partners.

Sequent Software deploys token platform

Sequent Software, the platform bringing cards to mobile, has launched the first [token service platform](#) which is compatible with credit, debit, prepaid and access control cards. The platform secures mobile transactions by replacing sensitive data with tokens and enables banks to manage their entire portfolio of cards in a single platform.

NEWS AND TRENDS CONT'D

Store

Storing identity and credential data on physical devices and in the cloud

Gemalto and NetApp deliver storage solutions for Amazon Web Services customers

Gemalto has partnered with NetApp to deliver an integrated virtual environment storage, encryption and key management solution for [Amazon Web Services customers](#). The solution combines NetApp's modern storage infrastructure with Gemalto's industry-leading SafeNet key management and provides customers with complete control over the keys that govern access to stored data.

Paris attack sparks Silicon Valley encryption debate

The recent terrorist attacks in Paris have boosted ongoing [debate](#) about encrypted data. Now, however, that debate has been brought to the forefront of discussions in Washington, D.C., as White House and congressional officials have called upon tech leaders to discuss the matter. While the tech giants argue that stronger encryption tools better protect their consumers, opening up encryption standards would give cybercriminals the ability to exploit people and would also pave way for police and the government to act as a “big brother” and spy on those people.

G&D provides NFC chip for smartwatch

Giesecke & Devrient (G&D) is providing the embedded [smart card chip](#) and operating system used in the NFC contactless payment smartwatch to be launched by Swatch in China in January 2016.

Worldpay testing biometric payments

U.K.-based payments processor Worldpay is testing out finger vein technology (FVT) with its product, FingoPay. FingoPay is a cloud-based cardholder identification solution that secures payments. The company is testing the product with its employees. They will be able to register their Visa credit or debit card to their finger vein template, which is [encrypted and stored](#) securely. When paying for an item in the staff restaurant, authentication will occur via the use of a FVT reader referenced against tokenized biometric data at the POS, with no card required.

NEWS AND TRENDS CONT'D

Interact

Sharing identity credentials between originating and relying parties

Pebble Time smartwatches with NFC payments capabilities

Wearable payments provider FitPay and connected watch maker ConnecteDevice have developed a smartstrap for the Pebble Time range of smartwatches for NFC payments. The new smartstrap, called [Pagaré](#), will use NFC technology combined with card network tokenization to interact with POS terminals at retail locations.

Creditcall and Miura Systems bring EMV and P2P encryption to mPOS

Creditcall, an EMV-ready payment gateway and EMV migration specialist, and Miura Systems, secure electronic payment hardware to the mPOS solution Marketplace, are partnering to bring [EMV and P2P functionality](#) to mobile point of sale solutions. Miura leverages Creditcall's [ChipDNA](#), a complete EMV migration solution that includes a comprehensive terminal management system (TMS) and point to point encryption (P2PE) for the highest level of cardholder data protection.

Singapore leverages Gemalto to secure access to government e-services

The Singapore government has selected Gemalto for securing access to [government e-services](#). Gemalto's Coesys eGov Authentication Server includes two-factor authentication and end-to-end encryption of passwords to secure Singapore personal access logins, and support a wide range of authentication methods, including hardware tokens and mobile phones.

First Data/NCR ink commercial deal

First Data, the eCommerce company, and payments hardware giant NCR Corp. are now partners in a strategic agreement. First Data will become a preferred provider of payment card acceptance, [cybersecurity and payment](#) processing solutions to NCR's customers, while NCR will become a preferred provider of ATM hardware and services to the 4,000 financial institutions across First Data's client roster. The partnership will also develop a payments security infrastructure that will include the First Data TransArmor Data Protection solution, which will be integrated with NCR's Epsilon and Connected Payments Gateway. TransArmor provides encryption and tokenization security across each stage of the transaction.



NEWS AND TRENDS CONT'D

Secure

Authenticating digital identities and keeping data safe

Booming biometrics market fueling more players

Swedish company Fingerprint Cards (FPC) has experienced a massive demand increase once it began outfitting China's Huawei smartphone with its [fingerprint sensors](#). In fact, in 2015 alone, its shares have jumped more than 1,000 percent. As for sales, FPC projects that its sale will continue to grow around 1,000 percent to nearly \$294 million in 2015 alone (2.5 billion Swedish crowns). As the value of its shares jump, that has investors weary of its actual valuation, with some even staying clear because it's believed to be too high.

iSight reports on ModPOS malware

Cybersecurity experts warn of new [ModPOS](#) malware targeting retail payment terminals. iSight Partners noted this is the most sophisticated point-of-sale malware seen to date. ModPOS includes modules for "scraping" payment-card numbers from the memory of point-of-sale systems, logging keystrokes of computer users and transmitting stolen data.

New adaptive authentication capabilities from Entrust Datacard

Entrust Datacard released Entrust IdentityGuard 11.0, which enables new [adaptive authentication capabilities](#) that provide secure access to leading online, cloud and mobile platforms and provide transparency and a frictionless experience. Entrust IdentityGuard 11.0 also introduces new options for transaction signing for online banking enabling mobile solutions that provide one-click transaction and fingerprint recognition.

MorphoTrust gets contract renovation with DoD for identity verification solutions

MorphoTrust has renewed its [technology contract](#) with the Department of Defense (DoD) for identity verification solutions to include MorphoTrust ABIS. With ABIS, DoD can enroll biometric images for instantaneous identity checks. ABIS facilitates the DoD's identity record-keeping, identity management, ID verification and deduplication mission goals.

CrucialTec unveils tiniest fingerprint sensor

CrucialTec unveiled the [tiniest fingerprint scanner](#), with a dimension of around 18.72 mm². The scanner is less than half of the size of the current smallest sensor, which comes in at 64 mm².

CardFlight received EMV approval from TSYS for mPOS

CardFlight, a mobile point of sale provider, received certification from payment solution provider TSYS for an [EMV mPOS solution](#). This enables merchants who process payments through TSYS to accept EMV payments on iOS and Android devices.



PLAYER DIRECTORY | ALL PLAYERS ARE LISTED IN ALPHABETICAL ORDER



CUSTOMERS/VOLUME	17,000 merchant accounts 30,000 users handling corporate, government and eCommerce payments
CUSTOMER FOCUS	Manufacturing, Consulting, Engineering, Transportation, Supply
LAUNCH DATE	1999

3Delta Systems, Inc., based in Chantilly, Virginia, is an innovative payment solutions company. 3DSI recently surpassed a lifetime processing milestone of \$100 billion. Since 1999, 3DSI has served more than 7,000 corporations and government agencies.



CUSTOMER FOCUS	Financial Institutions, Payment Services Providers, eCommerce, Travel
GEOGRAPHIES	North America, Germany, United Kingdom, Asia
LAUNCH DATE	2004

41st Parameter, part of Experian, is the global leader in device recognition and intelligence using patented technologies and have years of expertise to identify devices without cookies, without compromising privacy and without impacting performance.



LAUNCH DATE	1795
CUSTOMER FOCUS	Retail, Financial, Government, Hospitality, Education, Transit
GEOGRAPHIES	North America, Europe, Africa, and Australia

ABnote's primary products include financial cards, identification and credential cards, transit cards, hotel, facility and theme park access cards and membership programs, retail plastic cards, barcodes and labels, and secure documents.



PLAYER DIRECTORY | ALL PLAYERS ARE LISTED IN ALPHABETICAL ORDER



KEY PRODUCTS	Fraud Protection, Chargeback Management, Payment Gateway Solutions
CUSTOMER FOCUS	Travel, Retail, Digital Download, Social Network
LAUNCH DATE	2007

Accertify, Inc., a wholly-owned subsidiary of American Express, offers a suite of products and services that help eCommerce companies grow their businesses by driving down the total cost of fraud, simplifying business processes, and ultimately increasing revenue.



CUSTOMER FOCUS	Consumers, Merchants, Issuers and Financial Institutions
KEY PRODUCTS	Internet PIN Debit, Authentication Services
LAUNCH DATE	2008

Acculynk secures online transactions with a suite of software-only services backed by a patented authentication and encryption framework that provides greater security for issuers, EFT networks, merchants and payment processors.

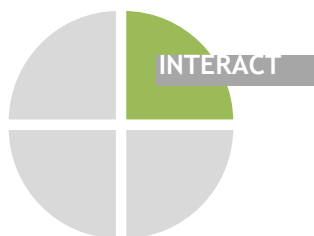


CUSTOMERS/VOLUME	ACI has more than 5,600 customers, including 18 of the Top 20 banks and 300 of the leading retailers globally.
CUSTOMER FOCUS	Banks, Retailers, Billers and Processors
LAUNCH DATE	1975

ACI Worldwide, the Universal Payments company, powers electronic payments and banking, processing \$13 trillion each day in payments and securities transactions.



PLAYER DIRECTORY | ALL PLAYERS ARE LISTED IN ALPHABETICAL ORDER



LAUNCH DATE	2009
CUSTOMER FOCUS	eCommerce, Mobile Commerce, Mail/Phone Order, Call Center and Brick-and-Mortar channels

Adaptive Payments is a payment authentication company that enables easy, safe, secure and authenticated transactions to occur using the cardholders' PIN or other data known to the cardholder, to authenticate debit and credit transactions.



CUSTOMER FOCUS	Government (Criminal Identification), Contact Centers, Financial Services, Telecommunications and Enterprises
GEOGRAPHIES	35 Countries
LAUNCH DATE	2004

AGNITiO offers worldwide market Voice ID products. AGNITiO's Voice ID is used by government organizations to prevent crime, identify criminals and provide evidence for lawsuits in over 35 countries. AGNITiO's Voice ID Products are also used by a number of leading customers and partners in contact centers, financial services, telecommunications and enterprise security sectors.



NEW!

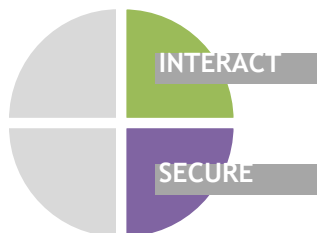


CUSTOMER FOCUS	Health Care, Education, Banking
PRODUCTS	Identity, Password Manager
LAUNCH DATE	2011

Allweb Technologies provides identity authentication and password management solutions. It offers a secure two-factor authentication solution with multiple options for identity authentication to end users. User identity is verified either by matching a one-time use PIN code texted to the user's cellphone or by matching fingerprint templates in real-time.



PLAYER DIRECTORY | ALL PLAYERS ARE LISTED IN ALPHABETICAL ORDER



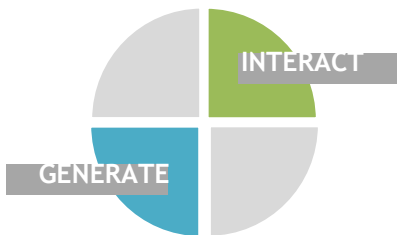
CUSTOMERS/VOLUME	107.2 Million cards in force
CUSTOMER FOCUS	Consumer, Small Business, Merchant
GEOGRAPHIES	137 Countries

American Express, incorporated on June 10, 1965, is a global financial services company. The company's principal products and services are charge and credit payment card products and travel-related services offered to consumers and businesses worldwide.



REVENUE	\$182.8 Billion
KEY PRODUCTS	Touch ID Apple Pay
GEOGRAPHIES	147 Countries

Apple Inc. designs, manufactures, and markets personal computers and related personal computing and mobile communication devices along with a variety of related software, services, peripherals, and networking solutions. Apple introduced Touch ID, a fingerprint recognition feature, available on iPhone 5S, 6, and 6 Plus.



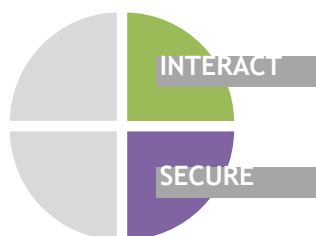
CUSTOMER FOCUS	Financial Services Organizations, Banks, Online Merchants
PRODUCTS	N-Kōd Secure Authentication

Arcanum Technology provides an innovative and cost-effective authentication solution that helps financial services organizations, banks and online merchants create a safe and secure business environment for their customers. The company's breakthrough N-Kōd system elevates the authentication process with an expanded character set and an innovative cypher algorithm that generates a series of tokenized values every step in the process.



PLAYER DIRECTORY | ALL PLAYERS ARE LISTED IN ALPHABETICAL ORDER

ARM



CUSTOMER FOCUS

Automotive, Consumer Entertainment, Digital Imaging, Mass Storage, Networking, Security, Wireless Industries.

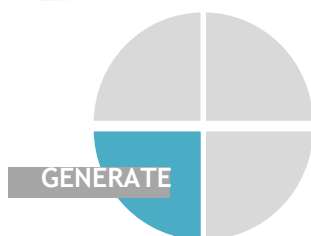
KEY PRODUCTS

Processors, Multimedia, Physical & System IP, Development Tools, Security, Internet of Things

LAUNCH DATE

1990

ARM designs scalable, energy efficient-processors and related technologies to deliver the intelligence in applications ranging from sensors to servers, including smartphones, tablets, enterprise infrastructure and the Internet of Things. The ARM business model involves the designing and licensing of IP rather than the manufacturing and selling of actual semiconductor chips.



CUSTOMER FOCUS

Financial Services, Retail and Merchant Services

KEY PRODUCTS

Payment Card Solutions, On-demand, Customized Card Marketing and Production

LAUNCH DATE

2000

Arroweye offers the first fully digital card solution approved by Visa, MasterCard, American Express and Discover, and the company continues to partner with some of the largest prepaid, credit/debit card programs in the financial and card services industries.

AU1TIX



CUSTOMER FOCUS

Airports, Secured facilities, Regulated Commercial and Public Services

KEY PRODUCTS

Front end solutions (ID Identification), solutions

GEOGRAPHIES

90 countries

AU10TIX Limited is a pioneer of multi-channel (front-end, online, mobile) ID authentication and record generation solutions. The company develops and implements solutions that automate the capture, authentication, validation and generation of digital records of identifying documents such as Passports, identity cards, driving licenses etc. AU10TIX Limited is a subsidiary of ICTS International B.V (Established 1982; Nasdaq symbol ICTSF) - a global provider of security services and solutions for airports, border crossings and sensitive facilities.



PLAYER DIRECTORY | ALL PLAYERS ARE LISTED IN ALPHABETICAL ORDER



CUSTOMER FOCUS	Financial Services, Government, Health Care
KEY PRODUCTS	Authentication
LAUNCH DATE	2009

Authasas was founded in 2009 and is headquartered in Amsterdam, The Netherlands. Authasas is a software development and marketing company dedicated to delivering strong authentication to the global marketplace.



CUSTOMER FOCUS	Banks, Payment Processors, Perso. Bureaus, Mobile Network Operators, Government
PRODUCTS	HCE, Tokenization, Secure Element and Smart Card Management, EMV Migration
LAUNCH DATE	1993

Bell ID's software issues and manages credentials on smartphones, smart cards and connected devices. It integrates with third party technology and simplifies the issuing complexities of payment, identity, loyalty and transit applications. Bell ID has the expertise to manage the lifecycle of any application on chip card as well as NFC-enabled mobile device.



CUSTOMER FOCUS	Banking, eCommerce, Enterprise
PRODUCTS	Behavioral Authentication, RAT Detection, Fraudulent Activity
LAUNCH DATE	2011

BioCatch provides behavioral biometric, authentication and malware detection solutions for mobile and Web applications. Available as a cloud-based solution, BioCatch proactively collects and analyzes more than 500 cognitive parameters to generate a unique user profile.



PLAYER DIRECTORY | ALL PLAYERS ARE LISTED IN ALPHABETICAL ORDER

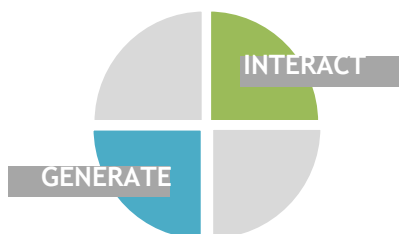


Bitnet



CUSTOMER FOCUS	Enterprise-Scale Merchants
PRODUCTS	Digital Commerce Platform
LAUNCH DATE	2013

Bitnet provides a digital commerce platform enabling enterprise-scale merchants to accept bitcoin payments. Bitnet has offices in San Francisco, California, and Belfast, Northern Ireland.



CUSTOMER FOCUS	Enterprises, Financial Institutions, SMEs
PRODUCTS	PayConex Platform, P2P, Tokenization
LAUNCH DATE	2007

Bluefin Payment Systems provides secure payment technology for enterprises, financial institutions and small-medium sized businesses worldwide. Bluefin's innovative and proprietary PayConex Platform includes PCI-validated Point-to-Point Encryption (P2PE), QuickSwipe mobile POS, Ecommerce, tokenization, international payments and more.

Brighterion.

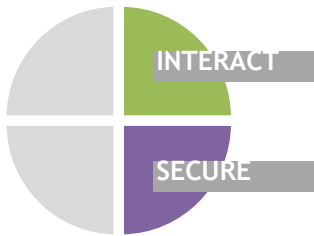


CUSTOMER FOCUS	Financial Services, Homeland Security, Mobile Payments, Hardware, Software, Marketing, Health Care, Identity Fraud
CUSTOMERS/VOLUME	6 of the Top 10 global banks
PRODUCTS	Omni-channel Fraud Scoring; Credit Risk & Chargeback Prevention; Anti-money Laundering; Data Breach Detection; Others

Brighterion offers the world's deepest and broadest portfolio of artificial intelligence and machine learning technologies which provides real-time intelligence that matters from all data sources, regardless of type, complexity and volume.

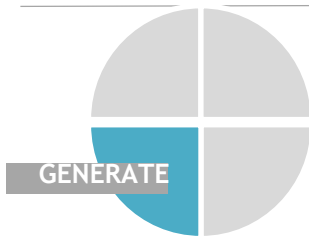


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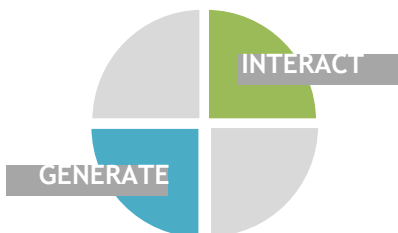
GEOGRAPHIES	United States, Europe and Africa
CUSTOMER FOCUS	Merchants and Banks
KEY PRODUCTS	Consumer Authentication, Alternative Payments, Mobile, Big Data, Solution Design

CardinalCommerce has been enabling authenticated payment transactions in the card-not-present payments industry since 1999. Cardinal services, partners with and complements providers to deliver their one connection solution to secure transactions.



CUSTOMER FOCUS	National ID, Health Care, Gaming, Stored Value
GEOGRAPHIES	36 countries
PRODUCTS	Smart Cards, Cards, Software, Readers & Terminals

Since 1998, CardLogix has manufactured cards that have shipped to more than 36 countries around the world. With expertise in card and chip technology, as well as card operating systems, software, development tools, and middleware, CardLogix has been at the forefront of smart card technology.



CUSTOMER FOCUS	OEMs, Banks, MNOs, Merchants, Program Managers
KEY PRODUCTS	Cloud-Based Payments and Host Card Emulation (HCE), Tokenization, and Value-Added Services
LAUNCH DATE	2007

Carta Worldwide is an award-winning leader in digital transaction processing and enablement technologies, including cloud-based payments and host card emulation (HCE), tokenization, and value-added services such as digital offers, loyalty and stored value solutions. Carta empowers OEMs, banks, MNOs, merchants, program managers and others to enable existing cardholder accounts or issue new and innovative products for the digital world.



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Ciptor



CUSTOMER FOCUS	Mobile
KEY PRODUCTS	Mobile TrackPad, Touch Solutions, Mobile Flash Solutions
LAUNCH DATE	2001

Ciptor is a value-added specialty distributor of IT Security – taking award-winning vendors to customers in Scandinavia, EMEA and Asia Pacific. Ciptor supplies software and solutions to enterprise, business and government customers in the region.



CUSTOMER FOCUS	Bank Operators, Telco Operators, Integrators, Cybersecurity Companies, Retailers
KEY PRODUCTS	Payment, Proximity Detection, Access & Security, IoT
LAUNCH DATE	2013

CopSonic is a carried spin-off launched in September 2013. CopSonic develops and markets a SDK for sonic and ultrasonic multi-factor authentication. The CopSonic technology is a new universal contactless communication protocol for security, payment and tracking. It is already available for 30 billion smart devices existing worldwide, including: feature phones, smartphones, tablets, TV-box, computers, game consoles, and Internet of Things devices.

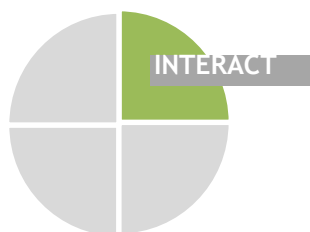


CUSTOMER FOCUS	Mobile
KEY PRODUCTS	Mobile TrackPad, Touch Solutions, Mobile Flash Solutions
LAUNCH DATE	2001

CrucialTec, a business dedicated to mobile input solutions, developed TSP (Matrix Switching-Touchscreen Panel), a new capacitive touchscreen. The company supplies products along with UI and software, and produces its MFM (Mobile Flash Module), an associated business, based on optical technology.

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cryptoV^{ision}



CUSTOMER FOCUS	Defense, Automotive, Financial, Government, Retails, Industry
KEY PRODUCTS	Smart card middleware, JAVA Card framework, PKI
LAUNCH DATE	2000

cryptovision is a specialist for cryptography and electronic identity solutions. The Germany-based company has been specializing in this field for 15 years, with hundreds of successful projects delivered. More than 100 million people worldwide make use of cryptovision products everyday in such diverse sectors as defense, automotive, financial, government, retail and more.



NEW!



CUSTOMER FOCUS	Financial Services, Law Enforcement and Security, Health Care, Defense, Intelligence, Marketing and Customer Service Applications
PRODUCTS	Facial Recognition
LAUNCH DATE	1999

CyberExtruder is known for its work in the field of computer vision for its reconstruction technology which transforms 2D images of people to 3-D models of them. First used by the entertainment industry to personalize video games and apps for mobile devices, the company's technology continued to advance and garnered interest from the security community.



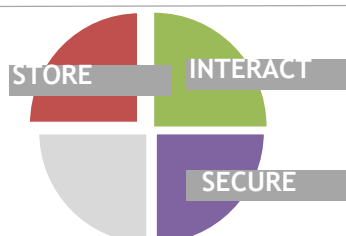
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Daon



CUSTOMER FOCUS	Government, Commercial Enterprises
GEOGRAPHIES	Australia, Europe, Africa, the Middle East, Asia, and the Americas
LAUNCH DATE	2002

As a privately held software company and biometrics industry major, Daon was founded to build biometric software products that would allow people to authenticate themselves in person or online in a secure, convenient and flexible manner, thus eliminating the threat of security breaches and device fraud.

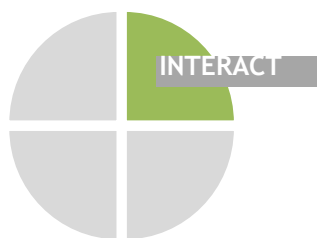


CUSTOMER FOCUS	Persons
KEY PRODUCTS	Password Manager, Automatic Filling, Digital Wallet
LAUNCH DATE	2009

Dashlane makes identity and payments simple and secure through its world-leading password manager and secure digital wallet. It is the solution for the common problem encountered by hundreds of millions of Web users worldwide — that of registering, logging in and checking out on every website and every device. Millions of people use Dashlane to manage their passwords, automatically log in, generate strong passwords, pay on any website with any card without typing, and more.

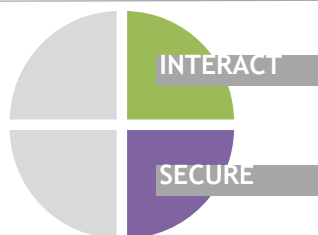


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LAUNCH DATE	1996
CUSTOMER FOCUS	Acquirers, Merchants and Financial Institutions
GEOGRAPHIES	185 Countries

Discover Network offers unique payments solutions through its open, flexible and highly secure network. They are an ever-expanding payments network that markets and supports a full range of innovative payment solutions for customers globally.



CUSTOMER FOCUS	Financial Institutions, Government Entities, Payment Companies
PRODUCTS	Authentication, Payment, Regulatory Solutions
LAUNCH DATE	1995

Early Warning provides innovative risk management solutions to a diverse network of 2,100 financial institutions, government entities and payment companies, enabling businesses and consumers to transact with security and convenience. Owned and governed by five of the largest banks in the United States, its business model facilitates a data exchange system based on collaborative intelligence and trusted exchange.



CUSTOMERS/VOLUME	\$123 Billion
CUSTOMER FOCUS	Financial Services, Higher Education, Insurance, Automotive, Telecom & Utilities, Retail
KEY PRODUCTS	Marketing & Lead Management, Fraud Protection, Credit Risk Assessment, Collections & Recovery

eBureau provides a suite of predictive analytics and real-time information solutions to help companies acquire customers, manage risks and maintain customer relationships. Clients span across numerous industries and rely on the company's business and consumer scoring, identity verification, authentication, location and monitoring services to make instant, data-driven decisions about consumers and businesses.



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Entrust Datacard™



GEOGRAPHIES	150+ Countries
CUSTOMER FOCUS	Enterprise, Critical Infrastructure, Financial Institutions, Government, Law Enforcement
REVENUE	\$660 Million

Consumers, citizens and employees increasingly expect “anywhere” and “anytime” experiences — whether they are making purchases, crossing border payments or logging onto corporate networks. They also expect the ecosystems that allow this freedom and flexibility to be entirely reliable and secure. Entrust Datacard offers the trusted identity and secure transaction technologies that make these ecosystems possible.

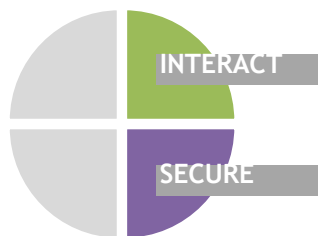
EQUIFAX®



CUSTOMERS/VOLUME	600 million customers and 81 million businesses
CUSTOMER FOCUS	Retailers, Insurance Firms, Utilities, Government, Banks, Credit Unions, other Financial Institutions
GEOGRAPHIES	19 Countries

Equifax is a global leader in consumer, commercial and workforce information solutions that provides businesses of all sizes and consumers with insight and information they can trust.

ethoca™



CUSTOMERS/VOLUME	Seven of the top ten eCommerce brands, seven of the top nine U.S. card issuers, two of the top five U.K. card issuers and more than 2,100 eCommerce businesses around the world
KEY PRODUCTS	eCommerce, Payment, Chargeback Fraud
LAUNCH DATE	2005

Ethoca is a global provider of collaboration-based technology that enables card issuers, eCommerce merchants and online businesses to increase card acceptance, stop fraud, recover lost revenue and eliminate chargebacks.



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GEOGRAPHIES	80 Countries
CUSTOMER FOCUS	Automotive, Public Sector, Health, Communications, Utilities, Credit Unions, Collections
REVENUE	\$4.8 Billion

Experian is a global information services company, providing data and analytical tools to clients around the world. They help businesses to manage credit risk, prevent fraud, target marketing offers and automate decision making. Experian also helps people to check their credit report and credit score, and protect against identity theft.



EyeVerify



CUSTOMER FOCUS	Device Manufacturers, Financial Institutions, Government Agencies, Healthcare Services
PRODUCTS	Eyeprint ID
LAUNCH DATE	2012

EyeVerify Inc. is the creator of Eyeprint ID – transforming a picture of your eye into a key that protects your digital life. Eyeprint ID is a highly accurate biometric technology for smart devices that delivers a password-free mobile experience with convenient, secure, private authentication. This patented solution uses the existing cameras on mobile devices to image and pattern match the blood vessels in the whites of the eye and other micro features in and around the eye.



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CUSTOMER FOCUS

Governments, Businesses, Consumers

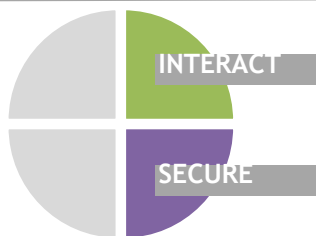
GEOGRAPHIES

Europe, North America, United Arab Emirates, Latin America, Asia

PRODUCTS

Hardware and software solutions for iris identity

EyeLock Inc. is an iris-based identity management technology company that focuses on developing systems for border control, logical access, global access control, and identity management sectors. The company offers its solutions to eliminate cyber fraud, identity theft, and unauthorized access to secure environments. It serves governments, businesses, and consumers through its distributors in Europe and North America; and partners in the United Arab Emirates, Latin America, and Asia. As of September 1, 2015, EyeLock Inc. operates as a subsidiary of VOXX International Corporation.



CUSTOMER FOCUS

Banking, Payments, Insurance, and Gambling Industries, Police, Security and Local Government

KEY PRODUCTS

Face, Voice and Facial Recognition, Video Chat

LAUNCH DATE

2013

Facebanx has developed fully integrated facial recognition technology that works via webcams, mobile phones and tablets. Facebanx uses cloud-based technology to allow multiple users unlimited access worldwide either on a manual or automated basis. It is a valuable ID verification solution in the registration, single sign-on and KYC process. Facebanx aids AML and helps to minimize chargebacks.



CUSTOMER FOCUS

Retail, Law Enforcement, Airports & Transportation, Commercial Security, Gaming

PRODUCTS

Face Recognition Platform

LAUNCH DATE

2007

FaceFirst, LLC. is a biometric face recognition software company that uses its deep domain knowledge to solve problems of vital importance to the nation and the world in law enforcement, public safety, national security and transportation. It matches individual faces from a live image with the face of an individual contained in the system's database.



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CUSTOMER FOCUS	Acquirers, Issuers, Retailers and eCommerce
GEOGRAPHIES	90 countries
LAUNCH DATE	2008

Feedzai is a data science company that uses real-time, machine-based learning to help payment providers, banks and retailers prevent fraud in omnichannel commerce. Feedzai is a global company, with U.S. headquarters in San Mateo and is backed by SAP Ventures, big data investment firm Data Collective, and other international investors.



GEOGRAPHIES	80+ Countries
CUSTOMER FOCUS	Financial Services, Insurance, Public Sector, Pharma and Life Sciences, Education, Retail, Manufacturing, Technology, Telecommunications, Transportation and Travel
REVENUE	\$789 Million

FICO delivers superior predictive analytics that drive smarter decisions. The company's groundbreaking use of mathematics to predict consumer behavior has transformed entire industries and revolutionized the way risk is managed.



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GEOGRAPHIES	70 Countries
CUSTOMER FOCUS	Merchants, Financial Institutions, Government
CUSTOMERS/VOLUME	6.2 Million Merchant Locations

First Data is a global leader in payment technology and services solutions. With 24,000 owner-associates, the company provides secure and innovative payment technology and services to more than 6 million merchants and financial institutions around the world, from small businesses to the world's largest corporations.



LAUNCH DATE	2013
CUSTOMER FOCUS	Online Merchants
KEY PRODUCTS	Elastic Identity, Cyber Intelligence, Behavioral Analysis

Forter delivers real-time fraud prevention solutions for online merchants. Forter delivers a plug-and-play technology which allows online merchants to get a simple approve/decline answer for every transaction in real-time and delivers full merchant protection in case of a chargeback.



CUSTOMER FOCUS	Financial Services & Retail, Government, Identity & Access Security, Machine to Machine, Mobile, Transport, Training, Buy online
GEOGRAPHIES	190 Countries
LAUNCH DATE	2006

Gemalto offers digital security solutions with 2014 annual revenues of \$2.8 billion and more than 14,000 employees operating out of 99 offices and 34 research and software development centers, located in 46 countries.

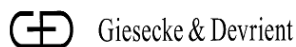


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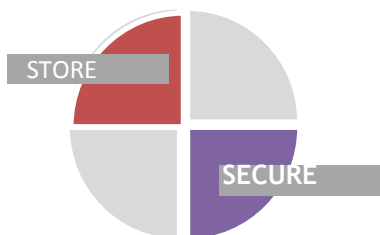
CUSTOMERS/VOLUME	100,000 Customers
CUSTOMER FOCUS	Retail, ISP and Web Host, Education, Financial Services, Health Care, Government, Developer
GEOGRAPHIES	150 Countries

A wholly owned subsidiary of Symantec, Corp., GeoTrust is a low-cost digital certificate provider. GeoTrust's range of digital certificate and trust products enable organizations of all sizes to maximize the security of their digital transactions cost-effectively.



KEY PRODUCTS	Driver's license; electronic EU resident permits; electronic payment; electronic vehicle registration cards; health care cards; national ID cards; passports; payment cards; SIM cards and OTA; strong authentication
KEY PRODUCTS	Banknote, Mobile Security, Government Solutions
GEOGRAPHIES	32 Countries Across Every Continent

Giesecke & Devrient is a global technology provider with its headquarters in Munich, Germany, and 58 subsidiaries, joint ventures, and associated companies in 32 countries across every continent.



KEY PRODUCTS	Web, Mobile, Business, Media, Geo, Specialized Search, Home & Office, Social
REVENUE	\$66 Billion
LAUNCH DATE	1998

Google is a global technology leader focused on improving the ways people connect with information. Google's innovations in Web search and advertising have made its website a top Internet property and its brand one of the most recognized in the world.



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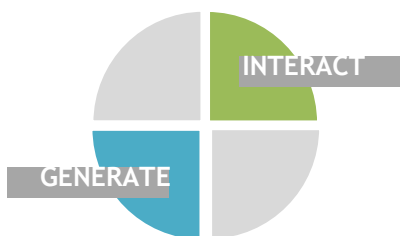


CUSTOMER FOCUS	Financial, Military, Consumer, Enterprise, and Government
GEOGRAPHIES	10 Countries
LAUNCH DATE	2007

GO-Trust Technology Inc. was the innovator of the secure microSDs and the first company to deliver hardware security for mobile devices using the SD and microSD form factor. Its vision is to provide the most robust, service provider independent, privacy and security solutions for all open architecture mobile devices.

Heartland

NEW!



CUSTOMER FOCUS	Restaurant, Petroleum, Laundry, Municipalities, Nonprofit, Hospitality, Education, Parking, Retail, Correctional
KEY PRODUCTS	End-to-End Encryption, Data Security
LAUNCH DATE	1997

Heartland Payment Systems, payment processors in the United States, delivers credit/debit/prepaid card processing and security technology through Heartland Secure and its comprehensive breach warranty. Heartland also offers point of sale, mobile commerce, eCommerce, marketing solutions, payroll solutions, and related business solutions and services to more than 300,000 business and educational locations nationwide.

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CUSTOMER FOCUS

Banking & Financial, Education, Enterprise & Corporate, Government, Health Care

GEOGRAPHIES

100 countries

PRODUCTS

Access Control, Asset Tracking, Border Protection, Embedded Solutions, Identity Management, Secure Transactions

HID Global is focused on creating customer value and is the supplier of choice for OEMs, integrators, and developers serving a variety of markets that include physical access control; IT security, including strong authentication/credential management; card personalization; visitor management; government ID; and identification technologies for technologies for a range of apps.



Autonomy



CUSTOMER FOCUS

IT, Legal & Compliance, Marketing

KEY PRODUCTS

Information Analytics, Unified Information Access, Information Archiving, eDiscovery, Enterprise Content Management, Data Protection, Marketing Optimization

HP Autonomy processes human information, or unstructured data, including social media, email, video, audio, text and webpages. Autonomy's management and analytic tools for structured information, together with its ability to extract meaning in real-time from all forms of information, is unique for companies seeking to get the most out of their data.



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CUSTOMER FOCUS

All (Software Developers, Enterprises, Device Manufacturers)

KEY PRODUCTS

Biometric Security SDK, Key Password Manager, Token

LAUNCH DATE

2014

HYPR is a sector agnostic platform enabling secure biometric authentication. From software developers to enterprises and device manufacturers, the company aims to replace the use of passwords with a unified biometric identity protocol. As an end-to-end solution, HYPR is the fundamental framework for securing the Internet of Things.



KEY PRODUCTS

Online Fraud Prevention, Anti-Money Laundering, Merchant Risk

CUSTOMER FOCUS

Online Merchants, Acquiring Banks, Payment Processors and Gateways, Payments Services Providers, Digital Currency Exchanges, and Financial Institutions

IdentityMind's risk management platform builds reputations used in evaluating anti-fraud, merchant account applications, consumer account origination, identity verification services, anti-money laundering, and more. These reputations are shared during analysis, so everyone can benefit from the "network effect" while protecting the privacy of the entities.



CUSTOMER FOCUS

Global Government, Education, Retail, Transportation, Health Care

KEY PRODUCTS

Digital Certificates, Trusted Authentication, Mobility, and Cloud Services

LAUNCH DATE

2007

Identiv establishes trust in the connected world, including premises, information, and everyday items. CIOs, CSOs, and product departments rely upon Identiv's trust solutions to reduce risk, achieve compliance, and protect brand identity.



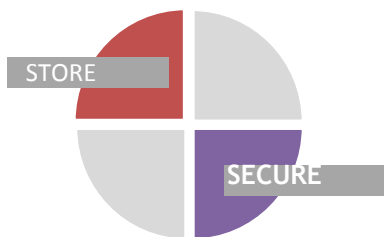
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IdenTrust



KEY PRODUCTS	Identity Solutions, Authentication, Encryption, Digital Signing
CUSTOMER FOCUS	Banks, Corporates, Government
GEOGRAPHIES	175 Countries

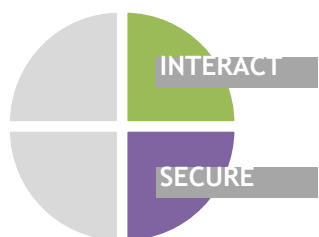
IdenTrust provides a legally and technologically interoperable environment for authenticating and using identities. IdenTrust enables end-users to have a single identity that can be used with any bank, any application, and across any network.



CUSTOMERS/VOLUME	40 installed locations, 35,000 desktop licenses, and repeat Fortune 100 clients
CUSTOMER FOCUS	Medium to Large Contact Centers
LAUNCH DATE	1996

IntraNext provides products and services to the call center industry. The company focuses on helping clients run efficient contact centers for better customer service capabilities.

Jumio®



CUSTOMER FOCUS	Finance, Retail, Travel, Sharing Economy, Gaming, Telecommunications
GEOGRAPHIES	120 Countries
LAUNCH DATE	2012

Jumio is a credentials management company that utilizes proprietary computer vision technology to authenticate customer ID credentials in real-time Web & mobile transactions to reduce mobile checkout friction.



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lenovo



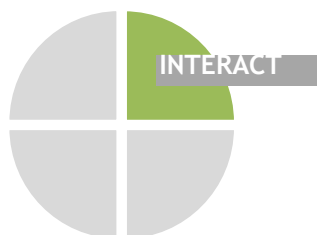
CUSTOMER FOCUS	Small Business Store, Large Enterprise, Government, Education, Students, Business Partners, Military
GEOGRAPHIES	160+ Countries
LAUNCH DATE	1984

Lenovo is a \$34 billion personal technology company and the world's largest PC vendor and a global Fortune 500 company. Lenovo has been the fastest growing major PC company for more than four years and creates a full range of personal technology products, including smartphones, tablets and smart TVs.



LAUNCH DATE	2012
GEOGRAPHIES	80 Countries

LiveEnsure® is the interactive authentication innovation company. LiveEnsure® authenticates user security context via their smart devices as they access a site, cloud or app with scan-to-screen, app-to-app, or screen-to-tap engagement.



CUSTOMER FOCUS	Retail, Finance, Government, Health Care
LAUNCH DATE	1972
KEY PRODUCTS	Secure Card Reader Authenticators, Card Personalization and Issuance, PIN Issuance and Management, Small Document Scanners, Protection Services

MagTek is a manufacturer of electronic systems for the reliable issuance, reading, transmission and security of cards, checks, PINs and identification documents. Its products include secure card reader/authenticators, encrypting check scanners, PIN pads and distributed credential personalization systems.



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CUSTOMER FOCUS

Consumers, Merchants, Business Partners, Governments

GEOGRAPHIES

Asia Pacific, Middle East and Africa, Europe, Latin America & Caribbean, and North America; 210 Countries

REVENUE

\$9.5 Billion

MasterCard operates a payments processing network, connecting consumers, financial institutions, merchants, governments and businesses. MasterCard's products and solutions make everyday commerce activities – such as shopping, traveling, running a business and managing finances – easier, more secure and more efficient for everyone.



REVENUE

\$86.8 Billion

CUSTOMER FOCUS

Communications and Media, Financial Services, Manufacturing and Resources, Retails Consumer Products and Services

GEOGRAPHIES

190 Countries

Founded in 1975, Microsoft is a worldwide leader in software, services, devices and solutions that help people and businesses realize their full potential.



CUSTOMER FOCUS

Government Identity, Public Security, Critical Infrastructure, Transportation and Business Markets

PRODUCTS

Civil Identity (ID), Public & Border Security (Check ID), Digital ID and Smart Transactions, Biometric Terminals

LAUNCH DATE

2005

Morpho employs more than 8,600 people in 55 countries. Morpho is one of the leading suppliers of SIM cards, smart cards, trace detection equipment and gaming terminals. With integrated systems operating in more than 100 countries, Morpho's solutions simplify and secure the lives of people around the world.



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Nok Nok LABS



CUSTOMER FOCUS	Device Manufacturers, Mobile Networks Operators, Identity Service Providers, Security Vendors
KEY PRODUCTS	Multifactor Authentication Client Desktop & Client Edition, Server
LAUNCH DATE	2011

Based in Palo Alto, California, the company was founded in November 2011 to unify the silos that plague current online authentication technologies. Nok Nok Labs' ambition is to fundamentally transform online authentication by enabling end-to-end trust across the Web in a manner that is natural to end-users while providing strong security and proof of identity.

NUData Security



CUSTOMERS/VOLUME	Fortune 100 Companies
KEY PRODUCTS	Early Fraud Detection, Behavior Piercing, Behavioral Analytics, Web Fraud, Advanced Threat Detection
LAUNCH DATE	2008

NuData Security, Inc. provides advanced Web security solutions to enterprises through proprietary behavior analytics and countermeasures. NuDetect examines users in real-time through context aware measures including behavior signatures unique to a customer's business and those common across the NuData security cloud.

NXP



CUSTOMER FOCUS	Access Management, Aerospace and Defense, Automatic Fare Collection, Automotive, Computing, Consumer, Cybersecurity, eGovernment, Health Care, Industrial, Lighting, Portable Devices
LAUNCH DATE	2006

NXP Semiconductors has its expertise in high-performance mixed signal electronics and is driving innovation in the areas of connected car, security, portable and wearable, and the Internet of Things.

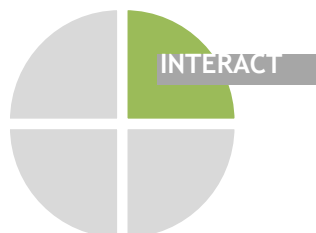


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CUSTOMERS/VOLUME	2,000 Financial Institutions
CUSTOMER FOCUS	Financial Institutions, Mobile Network Operators, Government and Corporate Entities, Transportation Authorities, Retailers, Internet of Things Providers
GEOGRAPHIES	140 Countries

OT specializes in digital security solutions in the mobility space. Present in the payments, telecommunications and identity markets, Oberthur offers end-to-end solutions in the smart transactions, mobile financial services, machine-to-machine, digital identity and transport & access control fields. OT's international network serves clients in 140 countries.



LAUNCH DATE	1990
CUSTOMER FOCUS	Banks, MNOs, Vending & Unattended, Mass Transit, Petroleum, Parking
GEOGRAPHIES	55 Countries

On Track Innovations Ltd. (oti) is a leader in contactless and near field communications (NFC) applications based on its extensive patent and IP portfolio. Oti markets and supports its solutions through a global network of regional offices and alliances.



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CUSTOMER FOCUS	Nonprofits, Education, Political Campaigns, Government, Enterprise
GEOGRAPHIES	203 Countries
CUSTOMERS/VOLUME	165 million active customer accounts

PayPal gives people better ways to send money without sharing their personal financial information and with the flexibility to pay using their PayPal account balances, bank accounts, PayPal Credit and credit cards.


NEW!


CUSTOMER FOCUS	Financial Services, Public Sector, Health Care, Managed Service Providers
PRODUCTS	Identity Management Solutions
LAUNCH DATE	2002

Since 2003, Ping Identity has been providing identity and access management (IAM) solutions that give customers and employees one-click access to any application from any device. Over 1,200 companies, including half of the Fortune 100, rely on its award-winning products to make the digital world a better experience for over a billion people.



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CUSTOMER FOCUS

Mobile, Automotive, Education, Health Care, Internet of Everything, Networking, Smart Home

KEY PRODUCTS

Digital Communications Products and Services

LAUNCH DATE

1985

QUALCOMM, Inc. manufactures digital wireless communications equipment. The company licenses its code division multiple access (CDMA) and orthogonal frequency division multiplexing access intellectual property to other companies, and produces CDMA-based integrated circuits, and produces equipment and software used to track workers and assets, and software for wireless content enablement.



REVENUE

\$6 Billion

CUSTOMER FOCUS

Communications, Media and Entertainment Solutions, Energy Solutions, Health Care and Life Sciences Solutions, Public Sector

RSA is the security division of EMC. The security partner of more than 90 percent of the Fortune 500, they help the world's leading organizations with security concerns.



CUSTOMER FOCUS

Electronic Equipment, Consumer Electronics

GEOGRAPHIES

90 Countries

LAUNCH DATE

1938

For over 70 years, Samsung has led the global market in high-tech electronics manufacturing and digital media.



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CUSTOMER FOCUS	Persons and business
KEY PRODUCTS	Storage (Hard Drive), Backup & Recovery Services (Cloud, Hybrid Cloud)
LAUNCH DATE	1997

Seagate is a global data storage solutions provider, developing products that enable people and businesses around the world to create, share, and preserve their most critical memories and business data. Over the years the amount of stored information has grown, confirming the need to successfully store and access huge amounts of data. As demand for storage technology grows, the need for greater efficiency and more advanced capabilities continues to evolve.



CUSTOMER FOCUS	Banking & Financial Services, Government, Payments, and Telecoms & Utilities
GEOGRAPHIES	briidge.net Connect, briidge.net Exchange
LAUNCH DATE	2008

SecureKey is the identity and authentication provider for organizations that deliver online consumer services. SecureKey eliminates the need to store passwords by securely linking consumer ID to trusted devices, while providing consumers with the choice, control and convenience over how they access the services they want. SecureKey delivers a high-performance, easy-to-use, strong dynamic authentication platform that reduces the burden, cost, and risks associated with authenticating millions of consumers while also improving the user experience.

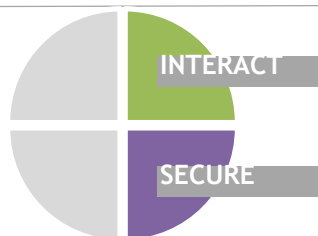


CUSTOMER FOCUS	Financial, Commercial, Federal, Medical
LAUNCH DATE	2000

SecurityMetrics is a leading provider and innovator in data security and compliance for organizations worldwide. The company's mission is to help organizations comply with financial, government, and health care mandates through innovative security tools, caring customer support, and qualified expertise.

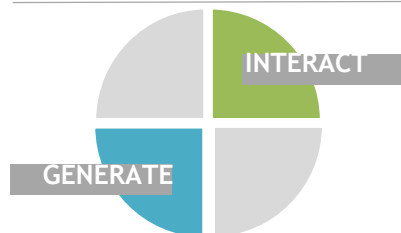


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LAUNCH DATE	2012
CUSTOMER FOCUS	Mobile Login & Payments
KEY PRODUCTS	Branded Mobile Payments, Frictionless Payments, FonePrint Technology

SEKUR Me, Inc. eliminates online payment friction for eCommerce and mCommerce sites. Its patented technology combines single-click convenience with multi-factor authentication, providing a high level of security with an unmatched level of convenience by eliminating user IDs and passwords for safer logins.


NEW!


CUSTOMER FOCUS	Banks, OEMs & MNOs, Transit and Access, Merchants
PRODUCTS	Cards & Apps, Tokenization & HCE, Security
LAUNCH DATE	2010

Sequent enables banks, transit agencies and any other issuer to securely digitize their credit, debit, transit, loyalty or ID cards and distribute them to their own application, and to any other application using the Sequent Platform. Sequent's APIs empower the app developer community to bring cards to all apps on mobile, wearable, and other connected devices enabling consumers to make payments, redeem offers, open doors, and ride transit systems. Sequent Platform includes: Token Service Platform (TSP), Card and Wallet Management Platform, and Trust Authority.



CUSTOMER FOCUS	Travel, Digital Cash, On-Demand, Online Marketplace, eCommerce, Payment Gateway
PRODUCTS	Machine Learning, Device Fingerprinting
LAUNCH DATE	2011

Using large-scale machine learning technology to predict fraudulent behavior with unparalleled accuracy, Sift Science leverages a global network of fraud data. Our flexible, adaptive, and automated solution helps businesses of all sizes detect and prevent fraud.

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CUSTOMER FOCUS

Technology (mobile, tablet, Notebook PC),
Automobiles, Wearables

GEOGRAPHIES

China, South Korea, Taiwan, the United States,
Japan, and other countries.

LAUNCH DATE

1986

Pioneers and leaders of the human interface revolution, bringing innovative and intuitive user experiences to intelligent devices. From usability and R&D to supply chain and support, Synaptics collaborates with its partners to invent, build and deliver human interface solutions that integrate seamlessly and optimize system value.



CUSTOMER FOCUS

Borders and Identity, Law Enforcement and Public
Safety, Defense and Humanitarian Aid, Healthcare
and Personal Data

PRODUCTS

High Throughput Iris Recognition, Mobile Identity

LAUNCH DATE

2015

Tascent develops and deploys biometric identity products and solutions that excel in challenging real-world environments. Tascent has expertise in iris recognition and multimodal high-throughput and mobile biometrics stemming from its acquisition of AOptix Technologies' Identity Solutions business unit.



PRODUCTS

Verification APIs, Mobile SDKs, Data and Analytics
APIs

LAUNCH DATE

2005

TeleSign provides Mobile Identity solutions, helping customers secure and prevent registration fraud, while improving user experience and managing support costs. TeleSign delivers account security and fraud prevention with two-factor authentication based on each user's Mobile Identity (phone number, device and behavior) and driven by real-time, global intelligence, including reputation scoring and device data.



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ThreatMetrix



CUSTOMER FOCUS

eCommerce, Financial Institutions and FFIEC, Enterprise, Insurance, Social Networks, Government, Health Care

KEY PRODUCTS

Advanced Fraud Protection, Content-Based Authentication

LAUNCH DATE

2005

ThreatMetrix builds trust on the Internet by offering market-leading advanced fraud prevention and frictionless context-based security solutions. These solutions authenticate consumer and workforce access to mission critical applications using real-time identity and access analytics that leverage the world's largest trusted identity network.

TOKENEX



CUSTOMER FOCUS

Financial, Health Care, Insurance, Not-for-profit, Retail, University/College

PRODUCTS

Batch Tokenization, Data Vaulting, Virtual Terminal Proxy, Web Services, Recurring Payments

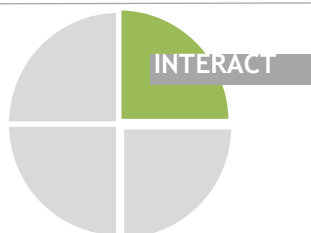
LAUNCH DATE

2010

TokenEx is an enterprise-class data security platform that offers flexibility in how customers can access, store and secure data. TokenEx extends flexibility by working with multiple data acceptance channels and by maintaining a processor-agnostic approach. TokenEx can tokenize and secure multiple data types including payment card data, financial account numbers, HIPAA records, and even unstructured data formats.



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PRODUCTS	Payments, Financial, Telecommunications
GEOGRAPHY	60 countries
LAUNCH DATE	1990

Transaction Network Services (TNS) has been delivering solutions for the payments, financial, and telecom industries since 1990. TNS is the preferred supplier of networking, integrated data and voice services to many leading organizations in the global payments and financial communities, as well as a provider of extensive telecommunications network solutions to service providers. TNS Secure Payment Networks, is a PCI certified network designed to securely and quickly deliver critical payment transaction information to banks, merchants, processors and other payment institutions.



CUSTOMER FOCUS	Education, Payment Services, Health Care, Restaurants, Financial Services, Hotels, Public Sector, Retail
GEOGRAPHIES	96 Countries
LAUNCH DATE	1995

Trustwave helps businesses fight cybercrime, protect data and reduce security risk. With cloud and managed security services, integrated technologies and a team of security experts, ethical hackers and researchers, it enable businesses to transform the way they manage their information security and compliance programs.



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CUSTOMER FOCUS	Financial, Enterprise, E-commerce, Government, Healthcare
GEOGRAPHIES	100 Countries
LAUNCH DATE	1991

VASCO proves two factor authentication and digital signature solutions to financial institutions. VASCO secures access to data and applications in the cloud, and provides tools for application developers to easily integrate security functions into their web-based and mobile applications.



KEY PRODUCTS	CDRN, Chargeback Representment Services, Intelligence Suite, Decline Salvage, Global Payment Gateway, CAMS
LAUNCH DATE	2005

Since 2005, Verifi has been a leading provider of global electronic payment and risk management solutions for card-not-present merchants. The highly customizable payment and real-time reporting platform serves as a foundation for Verifi's suite of fraud solutions and risk management strategies.

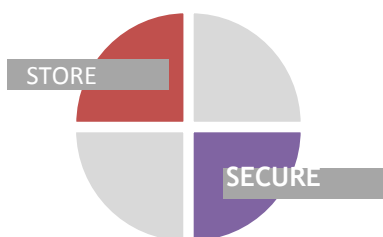


CUSTOMER FOCUS	Personal, Small Business, Medium and Large Organizations, Merchants, Government
GEOGRAPHIES	200 Countries
LAUNCH DATE	1958

Visa Inc. (NYSE:V) is a global payments technology company that connects consumers, businesses, financial institutions, and governments in more than 200 countries and territories to fast, secure and reliable electronic payments.



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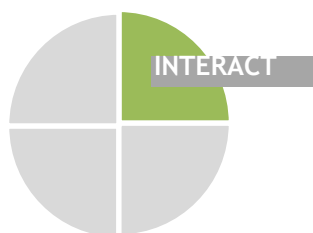
CUSTOMER FOCUS	Enterprise, Consumer
KEY PRODUCTS	Secure Storage, Mobile Application IPS, Adaptive Token, Secure Mobile Websites, Mobile Threat Intelligence
LAUNCH DATE	2011

V-Key focuses on cutting-edge mobile phone security research and development, studying the latest advanced attacks against mobile phones and inventing solutions to defend against them.



CUSTOMER FOCUS	Financial Services, eCommerce & Retail, Communication Services Providers, Marketing Service Providers
PRODUCTS	Phone Solutions, Identity Solutions
LAUNCH DATE	1997

Whitepages Pro was founded to deliver the most up-to-date identity insights to businesses of all kinds, along with powerful analytics and tools to maximize the power of that information. Products and pricing support businesses of all sizes, from local retailers to the Fortune 50.



CUSTOMER FOCUS	Individuals, Business, Developers
PRODUCTS	YubiKeys, YubiHSM, Services & Software
LAUNCH DATE	2007

Yubico was founded in 2007 with a prototype of its YubiKey invention and the mission to make secure online identities truly ubiquitous. Yubico's vision is to enable Internet users to have one single and secure key for securing access from any device to any number of services.



ABOUT THE IDENTITY TRACKER™

The PYMNTS.com Identity Tracker™, powered by Oberthur, is designed to be a forum for framing and addressing key issues and trends facing the entities charged with efficiently and securely identifying and granting permission to individuals to access, purchase, transact, or otherwise confirm their identity. The Identity Tracker™ also provides an organizing framework for identifying the many companies that offer key services needed to securely generate, store, transact and authorize or authenticate users in an identity ecosystem.

If you would like to be included in this report and/or would like your information to be updated, please contact us at identitytracker@pymnts.com and we will send you the data sheet required for submission.

ABOUT OBERTHUR TECHNOLOGIES

Oberthur Technologies (OT) is a world leader in digital security solutions for the mobility space. OT has always been at the heart of mobility, from the first smart cards to the latest contactless payment technologies which equip millions of smartphones. Present in the Payment, Telecommunications and Identity markets, OT offers end-to-end solutions in the Smart Transactions, Mobile Financial Services, Machine-to-Machine, Digital Identity and Transport & Access Control fields. OT employs over 6,000 employees worldwide, including close to 700 R&D people. With more than 50 sales offices across 5 continents and 1 manufacturing hub by region, OT's international network serves clients in 140 countries. For more information, visit www.oberthur.com.

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