There are many players across the payments ecosystem hard at work trying to solve one basic problem: how to move beyond the lowly password to authenticate a person’s digital identity.

The Fast IDentity Online Alliance (FIDO) was set up in July 2012 solely for the purpose of establishing a standard for how to do that. Organized as a non-profit, The FIDO Alliance is narrowly focused on authentication related to a consumer’s identity. Its mission is as complex as it is simple: to create a standard for how users authenticate to a device and for that device to, in turn, authenticate to the network in such a way that it is simple, scalable, and interoperable – and of course, secure.

“Consumer authentication has remained in very poor condition and has largely been based on passwords,” said Rajiv Dholakia, VP of Product and Business Development at Nok Nok Labs, a founding FIDO organization and board member said recently. “Our mission is to make authentication simple for the consumers, strong for the relying parties and scalable.”

And a small enough piece of the massively complicated security puzzle that it could make demonstrable progress.

FIDO works on a standard for authentication that is “case agnostic” – so can work across a variety of verticals – payments, enterprise security, health care, etc. – that others can leverage. Dholakia compares FIDO to the early days of SSL, which worked as a building block for the Web. “SSL was not and is not specific to payments, but rather encrypted data exchanged between the server and the consumer browser. The more universal approach to security is SSL, and it certainly won the payments turf on that measure. Like FIDO standards for authentication, SSL was and is leveraged universally for application. We hope FIDO takes the same road.”

An early achievement for the alliance is that Apple, Google and Microsoft have all provided the foundation to allow for the assembly of FIDO-based solutions on their platforms. The FIDO authentication standard was designed such that the more resistant it becomes, the greater scalability it can achieve. Dholakia explains that hackers are successful today because users continue to use methods of authentication against which scalable attacks can be mounted.

Dholakia says that FIDO’s vision for the future of digital identity can be thought of as “having a smart card in your pocket” which he explains is the direction that Apple, Windows and Google are all driving their OEMs, too. That, he believes, suggests that soon, phones will come with all the security capabilities that consumers are used to with smart cards,” he noted.
When asked about whether the blockchain and other new technologies are the next generation of digital identity and consumer authentication, Dholakia remarked that he sees the blockchain as the perfect place to validate a transaction that has happened in the past and then retrospectively looking at the transaction and being able to say that it happened. But, FIDO is all about authenticating a consumer’s digital identity to enable them to initiate a transaction and therefore does not anticipate including blockchain directly into its standards at this time.

As an organization, FIDO has made considerable progress since its inception — the first deployments of FIDO authentication were in the payments category — PayPal, Samsung Pay, NTT DOCOMO carrier billing, Alipay, and now Bank of America. That said, the biggest issue facing FIDO or any consumer authentication solution is interoperability — and in particular, interoperability for transactions that happen digitally (not in a physical environment) and across channels and devices.

FIDO’s organizational belief is that there will be innovation in the authentication space that will only require proximity for a consumer to be authenticated.

Dholakia suggests that from the user’s perspective this could be a simple gesture that they are already used to, like plugging in a USB device or tapping a fingerprint sensor. “I would anticipate that in about two years you will start to get some standardization around the user experience associated with these core security technologies and we believe FIDO will play a very strong role there,” he remarked.
WHAT’S INSIDE

Securing digital identities just got up close and personal. Biometrics identification as a means to verify one’s identity is not new, but the fear mongering brought about by the recent spate of cyber attacks has made its use more ubiquitous and mainstream.

Market intelligence firm Tractica predicts that the worldwide biometrics technology market will grow from $2 billion in 2015 to $14.9 billion by 2024. During that period, the consultancy forecast cumulative revenue will total $67.8 billion. Key industries in the biometrics market over the next decade are likely to be finance, consumer devices, health care and government.

And we might already be seeing signs of that, as the Australian Attorney-General’s Department announced the National Facial Biometric Matching Capability will be available by mid next year. The system will function as a hub to verify citizen data. The hub-and-spoke model will avoid creating a new centralized database, which could generate privacy and data security concerns. Australia isn’t the only country toying with this. Despite a pilot project for biometric polling trials in which only 44% of voters could be identified, Pakistan’s electoral commission has said the trials will continue ahead of a general election.

Moving back to the U.S., the Baltimore police department also plans to start experimenting with a biometric forensic device, ominously named “vampire.” The device, which has a size similar to a smartphone, allows fast, accurate, on-site latent and live fingerprint identification and matching analysis.

And as adoption grows, companies providing these solutions tend to take it up a notch with features and iterations. HID Global, a secure identity solutions provider, integrated its biometrics technology with its contactless smart card readers to simplify identity validation for citizen ID and many financial, health care and other commercial applications. And there is enough incentive to do so, too. The European Banking Authority has issued guidelines for secure online payments. Effective August 1, 2015, payment service providers are obliged to urge merchants to implement stronger consumer authentication for online payments based on security guidelines imposed by the European Banking Authority by the end of last year.

As the demand builds up, one can see different players get into the industry and grab their share. Consumer electronics company VOXX International recently acquired a 54 percent stake in a newly formed subsidiary, EyeLock LLC, and now owns all of the intellectual property and substantially all of the other assets of iris-authentication technology.

August Tracker Updates

This issue also includes the profiles of 73 industry players, with 5 new profiles — CardLogix, EyeLock, HID Global, Sift Science and TokenEx — and four updated companies: ABnote, Arroweye, Bitnet and Morpho. We updated ABNote to include it in the “Generate” category, and Arroweye, Bitnet and Morpho were updated for new products.
THE DIGITAL IDENTITY ECOSYSTEM

The Digital Identity Ecosystem lists the new providers added in each of the four key digital identity capability areas.

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

CardLogix launches biometric card series
CardLogix, a smart card firm, has added biometric capability to its microprocessor smart card development platform, M.O.S.T. Toolz. This capability will now capture and write interoperable fingerprint data to a microprocessor smart card. CardLogix’s contact and contactless M.O.S.T. Cards are used for applications such as passports, citizen ids, voting, law enforcement, and health care IDs.

Arroweye Solutions to provide digital cards to TCCI
Arroweye Solutions, a digital on-demand payment technology firm, has been selected to provide EMV prepaid cards for The Card Collaborative International (TCCI), an organization that offers its member companies a back office for compliance, risk and project management. Arroweye boasts various advantages to its on-demand solution, including lesser lead times and a reduced cost with a zero inventory model.

Gemalto guides Debit Network Alliance for EMV deployment in U.S.
Gemalto, a world digital security provider, was selected by the Debit Network Alliance (DNA), a consortium of leading U.S. debit network providers, to deliver EMV consulting services. Gemalto's consultants recommended and executed a strategy that details card, terminal and personalization requirements.

MorphoTrust releases mobile driver license program
MorphoTrust USA has released a pilot program of its mobile driver license program (mDL). Iowa Department of Transportation (DOT) employees will assess and validate the solution for use in situations where physical licenses are typically presented. The mDL software has visible and covert security features linked and layered in the digital image seen on screen, ensuring a high level of security, reliable authentication when presented for identification purposes, and protection against fraudulent reproduction.

HID unveils PIN token
HID Global, which provides secure identity solutions, expanded its identity assurance portfolio with the addition of a hardware PIN pad token, ActivID Flexi Token. ActivID Flexi Tokens are designed to minimize an organization’s costs for protecting data in high-volume deployments using a two-factor authentication device. The token can be utilized for user authentication transaction signing and host verification through a dedicated button on the device.
Store

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

Financial firms protecting data in the cloud

Cloud adoption for storing data is expanding, and CipherCloud conducted research across the financial sector to showcase how they are protecting this information. Key findings from the survey of 50 global companies include the following:

- As data becomes more sensitive, the use of tokenization grows. 40 percent of firms with highly sensitive personal-identifiable information use tokenization for protection.
- 64 percent of firms use searchable encryption to protect sensitive data while supporting business workflows.
- Protecting data such as email, URL and phone numbers, where the data has a specific recognizable format requires format-preserving protection.

Funderbeam partners with ChromaWay to build blockchain-based marketplace for equity

Data intelligence provider Funderbeam is set to create the world’s first blockchain-based investment trading platform, through a partnership with colored coins developer ChromaWay. Upon the launch of the platform, users will be able to trade digital tokens or colored coins for a syndicate and invest in startups on the bitcoin blockchain. Through the use of ChromaWay’s colored coins and the implementation of the blockchain technology, Funderbeam aims to eliminate third-party service providers and intermediaries. Since all trades will be verified and secured on blockchain, the platform will no longer need regulatory compliance and digital verification systems.

Colu partners with Revelator for blockchain-based IP management

Revelator, a cloud service for startups in music, has partnered with Colu, the blockchain-based service for digital assets. The partnership seeks to create an operating system for musicians and distributors that would make music ownership rights more transparent. Revelator and Colu are now working together to develop a Rights Management API to register all musical pieces and thus preventing illegal distribution of intellectual property. This will be achieved through smart contracts and digital assets.
NEWS AND TRENDS CONT’D

Interact

Sharing identity credentials between originating and relying parties

Australian National Facial Biometric Matching Capability available next year
The Australian Attorney-General’s Department announced that its National Facial Biometric Matching Capability will be available by mid next year. The system will function as a hub, allowing agencies with a “lawful authority to collect and share existing holdings of facial images to check the validity of images presented to them with facial image holdings of other agencies,” the department said in its note. The hub-and-spoke model will avoid creating a new centralized database in order to sidestep privacy and data security concerns.

MasterCard launches selfie payment pilot programs
MasterCard will launch pilot programs with U.S. and Dutch banks for selfie and fingerprint transactions authentication. The program with Netherlands’ ABN Amro, will allow approximately 750 users to checkout via an app with a fingerprint or picture window which appears when a user enters a Web store checkout. In the U.S., First Tech Federal Credit Union will allow its employees to make virtual donations to the Children’s Miracle Network (CMN) Hospitals through the same technology.

PAY.ON and Bitnet partner to simplify global bitcoin acceptance
PAY.ON, a provider of white label global payment gateway solutions, has partnered with Bitnet, an enterprise bitcoin payments processor, to enable payment processors globally to add bitcoin as a payment method. Bitnet guarantees payment within seconds with their unique instant approval service, preserving the typical merchant checkout flow that is designed for card acceptance, and therefore simplifying implementation. This is in keeping with PAY.ON’s mission to remove the complexity from payments and streamline cross-border eCommerce.

Bitnet and Zooz partner to enable bitcoin payments
Bitnet, a bitcoin payments processor, and Zooz, a payments platform provider, have partnered to enable merchants to accept bitcoin as a payment method. Zooz platform enables merchants to maximize acceptance rates across all sales channels and geographies. Through this partnership, Bitnet will enable Zooz’s customers to accept payments in bitcoin without being exposed to the risk of fraudulent transactions or any volatility in the price of bitcoin.

Samsung Pay launches in the U.S. in September
Samsung announced its contactless in-store mobile payment solution, Samsung Pay, will be available in Korea in August and on Sept. 28 in the U.S. It will be available to use at store from its launch, as it has Magnetic Secure Transmission (MST), which enables a contactless payment at terminals that only accept traditional magstripe payments. Users are authenticated using their fingerprint and the transactions are tokenized for security, and Samsung joined Visa Digital Enablement Program and will use the Visa Token Service to secure Samsung Pay transactions.

Nok Nok Labs raises $8 million in second Series C Financing
Nok Nok Labs announced that it has completed the second and final closing of $8 million in its Series C financing, raising a total of $16.25 million. This latest round of funding will reportedly be used to: expand sales, support and channel infrastructure to support the growing customer pipeline, meet the growing demands in the Asia Pacific region, and continue technology innovation around FIDO specifications.

ABnote announces Android wallet solution
ABnote partnered with Above Mobile to offer a loyalty solution proposed by Passbook to Android users. Above Mobile’s PassWallet safely and securely stores and manages users’ most sensitive information, including information tied to credit cards, bank accounts, ID documents, travel and event tickets, loyalty cards and gift cards, and coupons. The partnership launches a complete wallet application for Android users through the addition of ABnote’s secure mobile payments platform to PassWallet.
Secure

Authenticating digital identities and keeping data safe

Biometric market to grow to $14.9 billion by 2024
Tractica predicts that the worldwide biometrics technology market will grow from $2 billion in 2015 to $14.9 billion by 2024. During that period, the consultancy forecast cumulative revenue will total $67.8 billion. Key industries in the biometrics market over the next decade are likely to be finance, consumer devices, health care and government. Biometric modalities that are likely to generate the most revenue include fingerprint, iris image and voice recognition.

Strong authentication methods for online payments
Effective August 1, 2015, payment service providers are obliged to urge merchants to implement stronger consumer authentication for online payments based on security guidelines imposed by the European Banking Authority by the end of last year. The strong authentication implies the use of two authentication elements categorized as knowledge, possession and inherence. Current authentication methods, such as 3DSecure, will not be enough.

HID releases biometric contactless reader
HID Global, a secure identity solutions provider, integrated its Lumidigm biometrics technology with its OMNIKEY contactless smart card readers to simplify identity validation for citizen ID and many financial, health care and other commercial applications. Lumidigm technology is a tool for identity verification application where individuals enroll their fingerprint information onto a contactless card, and validation is accomplished by matching the individual’s fingerprint with his or her biometric data. Administrators can verify users’ identities by having them present a card, fingerprint or both to the reader. The solution is designed to streamline enrollment and transactions while preventing the use of fake fingerprints.

Pakistan will continue trials for biometric authentication at elections
Despite a pilot project for biometric polling trials in which only 44% of voters could be identified, Pakistan’s electoral commission has said the trials will continue ahead of a general election. A report on the trial notes that machines didn’t work on five of the 30 polling stations selected, some polling staff did not apply due diligence, and identification wasn’t always possible against National Database and Registration Authority records.

Palm vein ID platform for health care
Health care identity firm Imprivata launched a palm-vein scanning solution that connects patients with the medical information stored by health service provider. This solution tackles increased attempts at identity theft and insurance fraud while also reducing duplicate medical records and patient identification mistakes.

Baltimore police to start using biometrics
Baltimore’s police department plans to start experimenting with a biometric forensic device named “vampire.” The device, which has a size similar to a smartphone, allows fast, accurate, on-site latent and live fingerprint identification and matching analysis.

VOXX to acquire the assets of EyeLock
Consumer electronics company VOXX International has acquired a 54 percent equity interest in a newly formed subsidiary, EyeLock LLC, which now owns all of the intellectual property and substantially all of the other assets of iris-authentication technology provider EyeLock, Inc. The company also expanded its existing supply chain and distribution relationship with EyeLock and will now play a larger role in the distribution and sale of EyeLock’s suite of products.

Oberthur Technologies launched EMV blog
Oberthur Technologies (OT), the leading global supplier of EMV products, launched a “Chip Cards Insider” blog. The blog, with its timely launch two months before the liability shift in October, will address concerns from credit and debit card issuers, merchants and consumers about EMV chip cards.
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.

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

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.

CUSTOMER FOCUS
- Financial Institutions, Payment Services Providers, eCommerce, Travel

GEOGRAPHIES
- North America, Germany, United Kingdom, Asia

LAUNCH DATE
- 2004

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.

LAUNCH DATE
- 1795

CUSTOMER FOCUS
- Retail, Financial, Government, Hospitality, Education, Transit

GEOGRAPHIES
- North America, Europe, Africa, and Australia
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.

**KEY PRODUCTS**
- Fraud Protection
- Chargeback Management
- Payment Gateway Solutions

**CUSTOMER FOCUS**
- Travel, Retail, Digital Download, Social Network

**LAUNCH DATE**
- 2007

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.

**CUSTOMER FOCUS**
- Consumers, Merchants, Issuers and Financial Institutions

**KEY PRODUCTS**
- Internet PIN Debit
- Authentication Services

**LAUNCH DATE**
- 2008

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

**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
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.

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.
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.

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.
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.

**ARM**

**CUSTOMER FOCUS**

**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.

**Arroweye**

**CUSTOMER FOCUS**
Financial Services, Retail and Merchant Services

**KEY PRODUCTS**
Payment Card Solutions, On-demand, Customized Card Marketing and Production

**LAUNCH DATE**
2000
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.

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.

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.
Cardinal Commerce 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.

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.

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.
**CrucialTec**

**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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**CopSonic**

**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.

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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.
Daon

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.

cryptovision

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.

dashlane

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.
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.

**LAUNCH DATE** 1996

**CUSTOMER FOCUS** Acquirers, Merchants and Financial Institutions

**GEOGRAPHIES** 185 Countries

Discover Network provides services to acquirers, merchants, and financial institutions globally.

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**INTERACT**

**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

**GEOGRAPHIES** 185 Countries

**CUSTOMER FOCUS** Financial Services, Higher Education, Insurance, Automotive, Telecom & Utilities, Retail

**KEY PRODUCTS** Marketing & Lead Management, Fraud Protection, Credit Risk Assessment, Collections & Recovery

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**eBureau**

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**

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.

**GEOGRAPHIES** 150+ Countries

**CUSTOMER FOCUS** Enterprise, Critical Infrastructure, Financial Institutions, Government, Law Enforcement

**REVENUE** $660 Million

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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 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.

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.
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.

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.

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.
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.

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.
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.

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.

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.
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.

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.

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.
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.

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.

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.
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.

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.

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.
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.

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 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.
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.

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.

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.
### MasterCard

**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.

### Microsoft

**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.

### Morpho

**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 8,400 people in 40 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.
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 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.
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.

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.

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.
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.

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.

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

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.

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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<th>Company</th>
<th>Launch Date</th>
<th>Customer Focus</th>
<th>Key Products</th>
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<tbody>
<tr>
<td>SEKUR Me, Inc.</td>
<td>2012</td>
<td>Mobile Login &amp; Payments</td>
<td>Branded Mobile Payments, Frictionless Payments, FonePrint Technology</td>
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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.

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<tr>
<td>Sift Science</td>
<td>2011</td>
<td>Travel, Digital Cash, On-Demand, Online Marketplace, eCommerce, Payment Gateway</td>
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<tr>
<td></td>
<td></td>
<td>Machine Learning, Device Fingerprinting</td>
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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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<th>Geographies</th>
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<tr>
<td>Synaptics</td>
<td>1986</td>
<td>Technology (mobile, tablet, Notebook PC), Automobiles, Wearables</td>
<td>China, South Korea, Taiwan, the United States, Japan, and other countries.</td>
</tr>
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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.
### 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.

### Trustwave

**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.
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.

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.

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.
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.

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.

ABOUT PYMNTS.COM
PYMNTS.com is reinventing the way in which companies in payments share relevant information about the initiatives that shape the future of payments and commerce and make news. This powerful B2B platform is the No. 1 site for the payments and broader commerce ecosystem by traffic and the premier source of information about “what’s next” in payments. C-suite and VP level executives turn to it daily for these insights, making the PYMNTS.com audience the most valuable in the industry. It provides an interactive platform for companies to demonstrate thought leadership, popularize products and, most importantly, capture the mindshare of global decision-makers. PYMNTS.com... where the best minds and best content meet on the Web to learn “what’s next” in payments and commerce.
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