



Enabling the Internet of Things

Building secure digital identity ecosystems to connect users, cloud services, and connected devices

Summary

The Internet of Things has arrived. Gartner predicts there will be nearly 5 billion IoT devices in use by the end of 2015 and 25 billion connected devices by 2020¹. Organizations must be prepared to take advantage of the significant opportunities that come with the IoT or fall behind competitors. Innovative companies that become digital businesses by leveraging the IoT to create personalized, engaging experiences will become thought leaders that define the future of their industry. Digital transformation is not limited to the corporate sector. Governments can also benefit by applying digital business principles to revolutionize the delivery of government services.

Digital identity ecosystems can unify the identities of users, cloud services, and connected devices and change the way businesses and governments interact with customers and citizens. With a digital identity ecosystem, every person or machine that is connected to the Internet can be assigned a unique digital identity. This enables organizations to build secure, personalized experiences that react to users and conditions in real time while capturing valuable data on user preferences and behavior. Establishing persistent digital identities helps organizations to recognize users and deliver customized, unique experiences.

Digital identity management is a critical component in creating engaging experiences for customers and citizens. By unifying and securing digital identities, ForgeRock helps organizations to leverage user data to increase revenue and efficiency. ForgeRock builds IoT ready digital identity ecosystems for modern businesses and governments.

Market Challenges

Market challenges facing businesses and governments that are undergoing a digital transformation and creating products and services that involve the IoT include:

- Increasing user privacy concerns and regulations regarding data protection and sharing that can lead to legal and financial consequences when there are breaches
- Inability to seamlessly connect users, devices, and cloud services
- Lack of contextual security leading to greater risk of breaches of data and networked equipment
- Disjointed customer and citizen experience across numerous digital channels
- Inhibitive, proprietary legacy identity systems that cannot support digital user demands and business requirements, and limit innovative applications

¹ <http://www.gartner.com/newsroom/id/2905717>



While the IoT may seem like science fiction, it is becoming reality faster than most of us can comprehend.”

The Internet of Things: Revolutionizing the Retail Industry, Accenture

At ForgeRock, we are helping organizations take advantage of the IoT by relying on the 5 pillars of successful digital business:

Solution: 5 Pillars of Digital Business

1. Privacy Empowerment
2. Secure Internet of Things
3. Contextual Security
4. Personalized Customer Experience
5. The Open Source Way

Privacy Empowerment

THE PROBLEM:

■ Businesses and governments are racing to ensure and protect privacy as increasing numbers of users, cloud services, and connected devices go online. The IoT has led to an explosion of user data and securely collecting and sharing this information is a fundamental component of successful digital organizations. However, if the relationship between organization and user is not trusted and secure, customers and citizens will not share their information. Organizations will lose valuable insight into user history, tastes, and preferences, which is critical for creating personalized experiences.

■ Digital organizations must build a trusted digital relationship that prioritizes user privacy. A breach of customer or citizen data can lead to a loss of revenue and a damaged reputation. Businesses and governments that successfully build digital ecosystems that empower customers to share data will in turn gain important user intelligence.

THE SOLUTION:

■ ForgeRock builds secure, trusted, and transparent digital relationships between users, cloud services, and connected devices. Customers and citizens can be given control over their personal data with user-managed access. Now they can determine what users, cloud services, and connected devices can access their data, for how long, and under what conditions. Citizens can authorize data sharing

with from their connected home to utilities agencies and consumers can give their connected car access to their music preferences. Secure data sharing helps organizations to deliver personalized services across all channels. Digital transformation and the IoT are opportunities to develop new, innovative user experiences.

Secure Internet of Things

THE PROBLEM:

■ The IoT has brought billions of new users, cloud services, and connected devices online. Legacy identity systems were not designed to create seamless, secure experiences across all of these channels. Businesses and governments struggle to connect with customers and citizens in meaningful ways, providing a generic, disjointed user experience.

THE SOLUTION:

- ForgeRock's flexible, scalable digital identity platform empowers organizations to create omni-channel customer experiences by connecting the identities of users, their digitally-connected things, and cloud services. Managing these myriad relationships within a digital identity ecosystem, ForgeRock enables organizations to register users, cloud services, and connected devices, authorize and "de-authorize" their access to data, and apply policies for security and personalization.

- By securely unifying disparate digital identities across users, cloud services, and connected devices, businesses and governments are able to ensure a consistent, personalized user experience. User interactions with connected devices can help businesses and governments to bridge the physical and digital worlds. Governments can use smart sensors to manage the flow of traffic while businesses can create exciting IoT devices to connect with the smart home. ForgeRock helps organizations deliver services to billions of connected devices and things in a secure, scalable way. With ForgeRock, organizations can embrace the transition to the IoT era.

Contextual Security

THE PROBLEM:

- Continued hacks of corporate and government systems highlight the enormous threat of malicious attacks and data breaches. Organizations face significant financial, reputational, and legal consequences if personal user data is leaked to the public or is hacked by cyber criminals. Relationships that are cultivated for years are lost in seconds when customer or citizen trust is compromised. Digital organizations require security measures that are more advanced than simply checking username and password.

THE SOLUTION:

- ForgeRock provides continuous security for connected users, devices, and cloud services. Credentials are no longer enough to ensure security. Now, context is required to understand the true nature of the digital interaction. Does the customer usually log in from Norway? Do they have a wearable that is allowed to access their health data? Around what time does this login usually occur and what kind of system do they use? With billions of IoT devices going online and countless new digital relationships being formed, all identities in the digital ecosystem must be continuously authenticated.
- User digital interactions must be constantly monitored. In addition to using contextual cues to evaluate customer behavior, user identity and access rights can be verified with text codes, emails, security questions, or biometrics. If suspicious behavior is detected, user data can be secured. Protecting personal data is essential for retaining customer and citizen trust.

Personalized Customer Experience

THE PROBLEM:

- For businesses and governments, gaining a single view of each user has proved elusive. Users interact with organizations across so many different channels and information remains siloed at each point of contact. This leads to a fractured customer or citizen identity. It is difficult for organizations to "know the user," leading to an impersonal, generic user experience that fails to excite or engage. Users now expect services to recognize and adapt to their tastes and preferences in real time. With the proliferation of IoT devices, organizations must also ensure that users have a seamless, omni-channel experience across all connected devices.

THE SOLUTION:

- The ForgeRock platform empowers businesses and governments by connecting the identities of users, digitally-connected things, and cloud services. Unified user identity is critical for creating a seamless, omni-channel customer or citizen experience. The preferences, habits, and history linked to user identities helps organizations to personalize online and offline interactions with customers.
- By building user-centric digital ecosystems, businesses and governments can exceed user expectations with dynamic experiences that change to match shifting tastes and preferences. Identity is the driving force behind using the IoT to improve lives at a personal, organizational, and civic level.

The Open Source Way

THE PROBLEM:

- Most businesses and governments are inhibited by proprietary legacy identity systems that limit collaborative input and lack continuous development. Designed for employee use cases, these systems are incapable of the flexibility, transparency, and massive scale required by modern organizations. They lack repeatable business processes and do not provide a secure way to extend identity to the IoT. Legacy systems no longer fulfill the rapidly evolving requirements of digital organizations.

THE SOLUTION:

- ForgeRock offers an enterprise-class open source identity platform that is production-ready for hundreds of millions of users. Organizations gain transparency around the development process as open source gives organizations visibility into development. The modular, scalable, flexible architecture can accommodate millions of concurrent users and devices. Quickly deployable, ForgeRock can help organizations reach their strategic goals faster than competitors. Because businesses and governments have first-hand knowledge of their current and future identity demands, they can also contribute code for incorporation into the product. ForgeRock is committed to building collaborative partnerships with businesses and governments to assist in developing their vision of a digital organization

Conclusion

Businesses and governments are undergoing a significant digital transformation and adopting new IoT technologies. Creating a scalable, flexible, and secure digital identity ecosystem is critical for delivering personalized experiences across all channels. To learn more about how identity enables digital business and the IoT, download the following Accenture reports and ForgeRock white paper and videos.

Recommended Reading & Additional Resources

[ForgeRock in IoT: Smart Cities](#)

[ForgeRock in IoT: Smart Customer](#)

[White Paper: Identity as a Revenue Generator](#)

[Accenture Report: The Internet of Things - Revolutionizing Retail](#)

[Accenture Report: Digital Business Era - Stretch Your Boundaries](#)

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About ForgeRock The ForgeRock Identity Platform™ transforms the way millions of customers and citizens interact with businesses and governments online, providing better security, building relationships, and enabling new cloud, mobile, and IoT offerings from any device or connected thing. ForgeRock serves hundreds of brands like Morningstar, Vodafone, GEICO, TomTom, and Pearson, as well as governments like Norway, Canada, and Belgium, among many others. Headquartered in San Francisco, California, ForgeRock has offices in London, Bristol, Grenoble, Oslo, Singapore, and Vancouver, Washington. ForgeRock is privately held, backed by leading global venture capital firms Accel Partners, Foundation Capital, and Meritech Capital. For more information and free downloads, visit <http://www.forgerock.com> or follow ForgeRock on Twitter at <http://www.twitter.com/forgerock>.