



MIS|TI™ PRESENTS

InfoSecWorld
Conference & Expo 2018

DIGITAL TRANSFORMATION: BRINGING THE HUMAN ELEMENT TO THE IOT

Roshan Popal

Vice President, IT and Chief Information Security Officer
MicroStrategy

CHALLENGES WITH EIoT AND DIGITAL TRANSFORMATION

Enterprise-scale systems are costly to deploy and manage

1 Asset coverage



Gain awareness of enterprise assets and customers

2 Complex deployment



Implementing requires 100s of hours of planning and labor

3 Business integration



Need agility to develop and execute new business practices

4 Security and risk



Managing security and more endpoints

5 Analytics integration



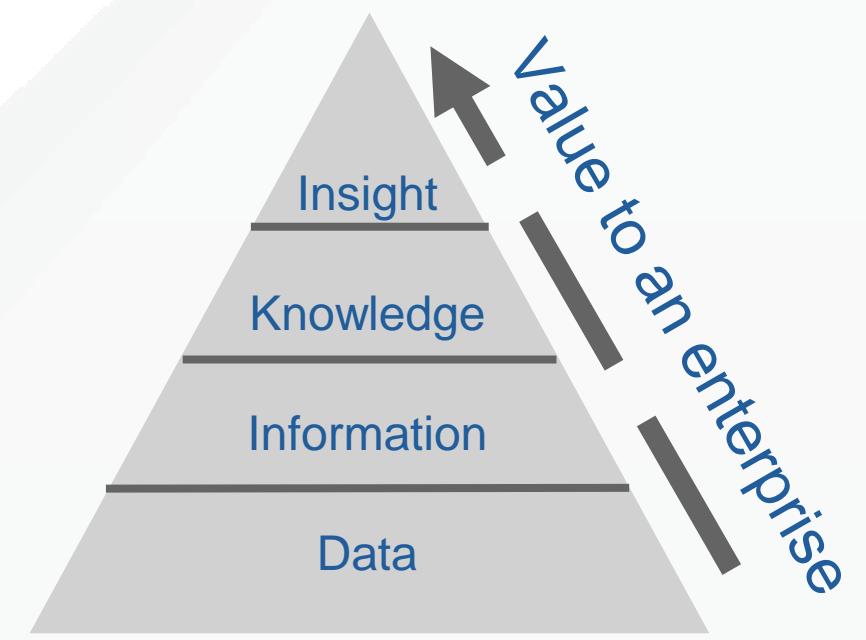
Making data collected insightful and actionable

WHAT'S NEEDED: A CONTEXTUAL, PERSON-CENTRIC APPROACH

Optimize assets, increase and extend security, and boost productivity

Business Challenges:

- Deficient intelligence impedes competitiveness, security and productivity = increased digital business risk and incompliance
- Lack of visibility results in under-utilization of assets = increased capital and operating expenses
- Insufficient insights into user behavior and engagement = poor user experience, lost productivity and revenue



Optimize Asset Utilization

- Real-time asset visibility
- Digitize enterprise assets affordably
- People communication & collaboration

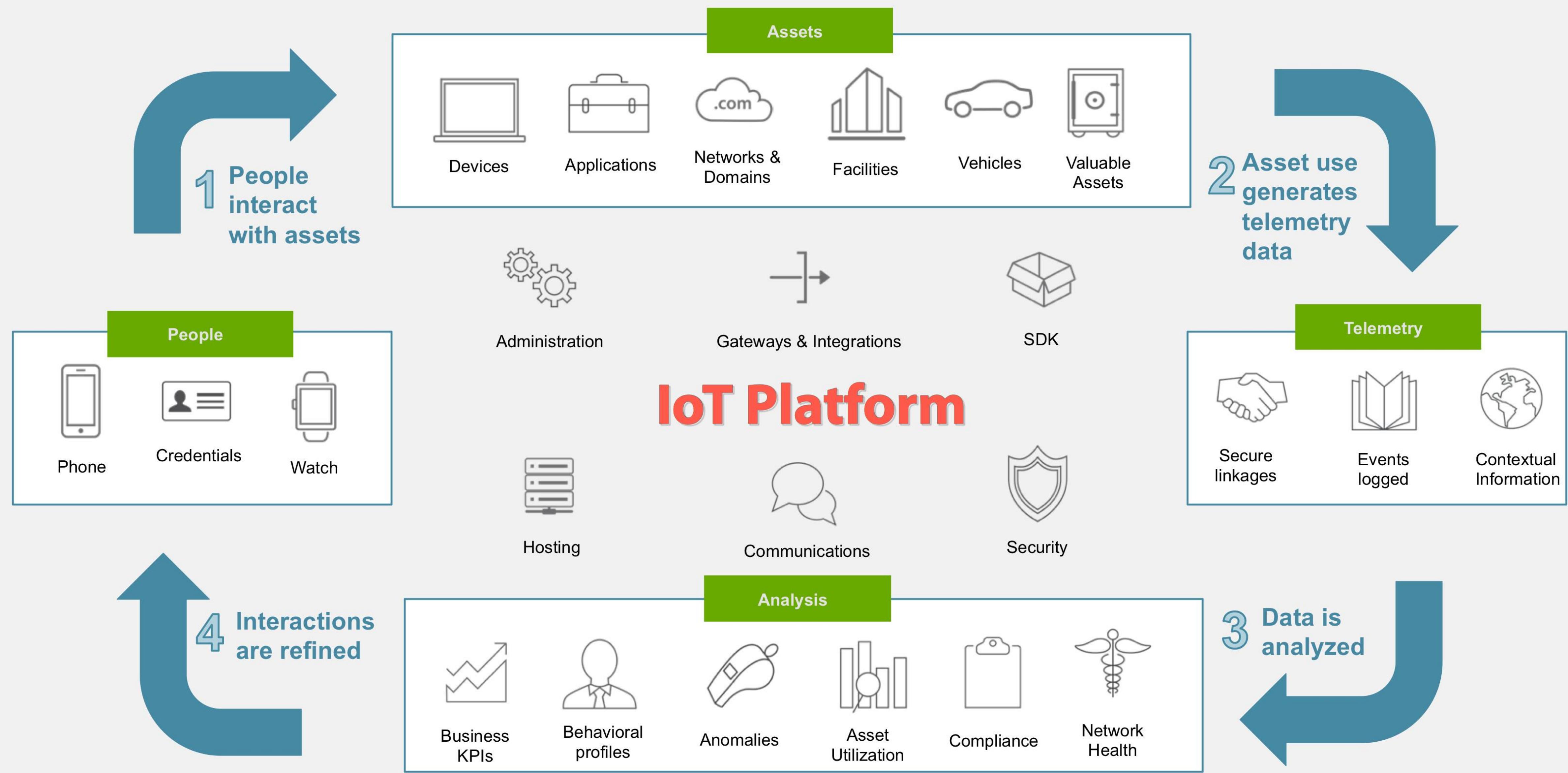
Deliver Exceptional User Experience

- Personalized **customer** experience in a multi-channel environment
- Frictionless **employee** access to facilities, systems and actionable insights
- Exceptional **visitor** experience

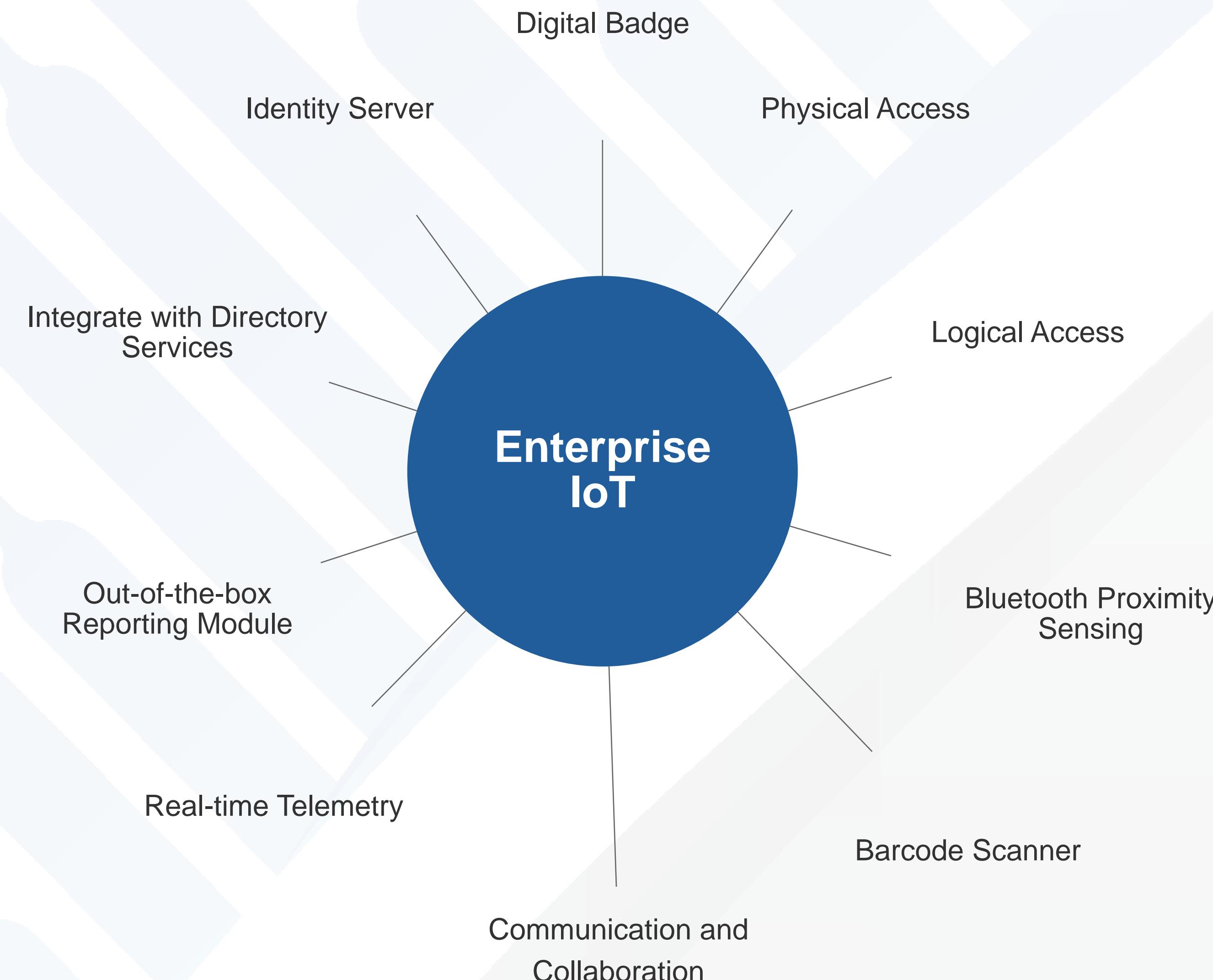
Advance Business Performance

- Customer loyalty & topline growth
- Reduced operating expenses
- Productive employees and partners

ENTERPRISE INTERNET OF THINGS ECOSYSTEM



CRITICAL CAPABILITIES FOR THE ENTERPRISE INTERNET OF THINGS

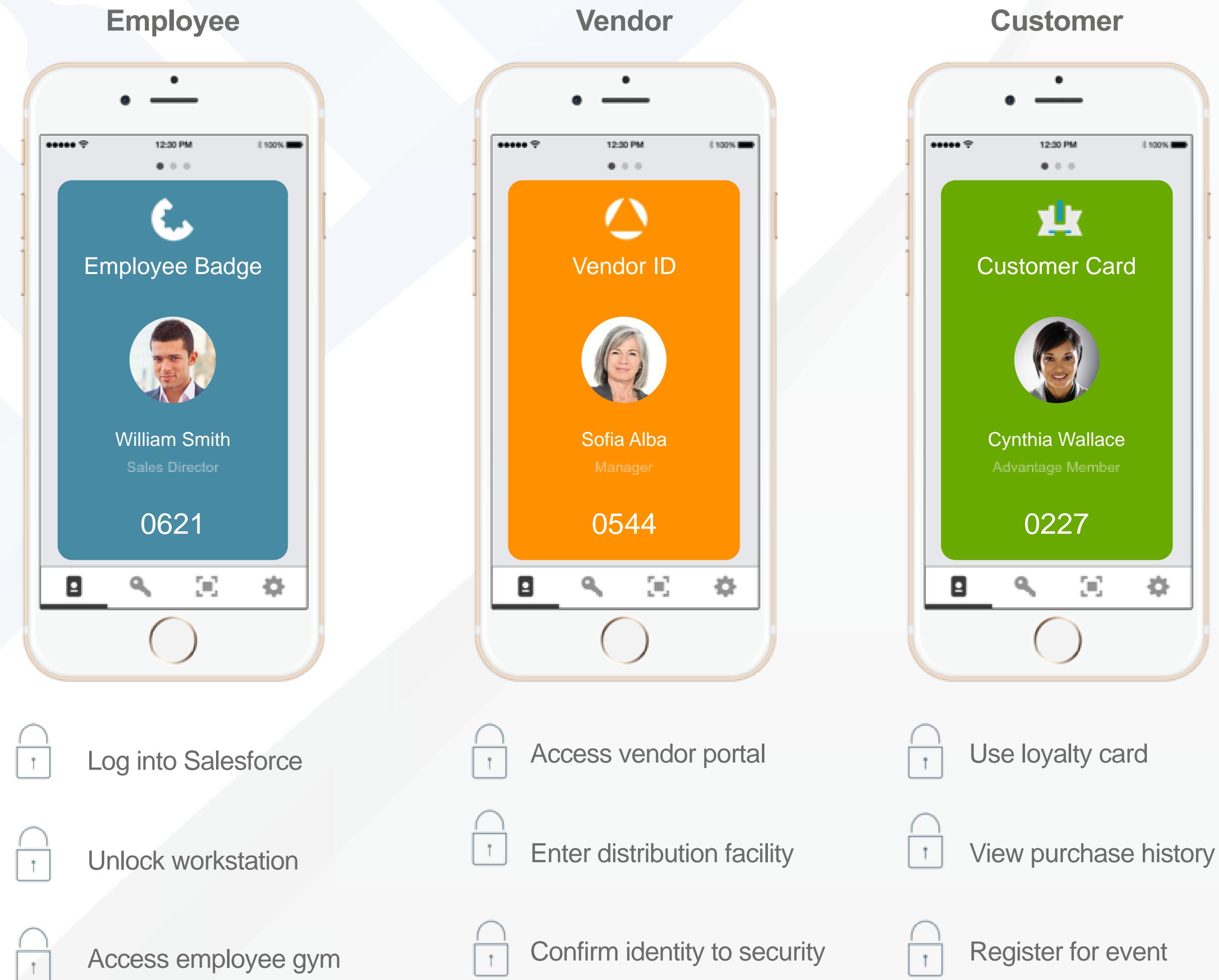


CRITICAL CAPABILITY: DIGITAL IDENTITY

Enterprise IoT

A unified identity allows users to leverage their smartphones as their personal liaison to both digital and physical worlds.

- A single digital identifier to track, report, and manage user interactions with enterprise assets
- Reduce exposure to risks when implementing enterprise IoT initiatives
- Verify user identities before granting customized access to secure assets
- Receive and respond to administrator- and manager-initiated communications
- Embed into existing commercial apps to unify customer identity across various channels



CRITICAL CAPABILITY: DIGITAL BADGE

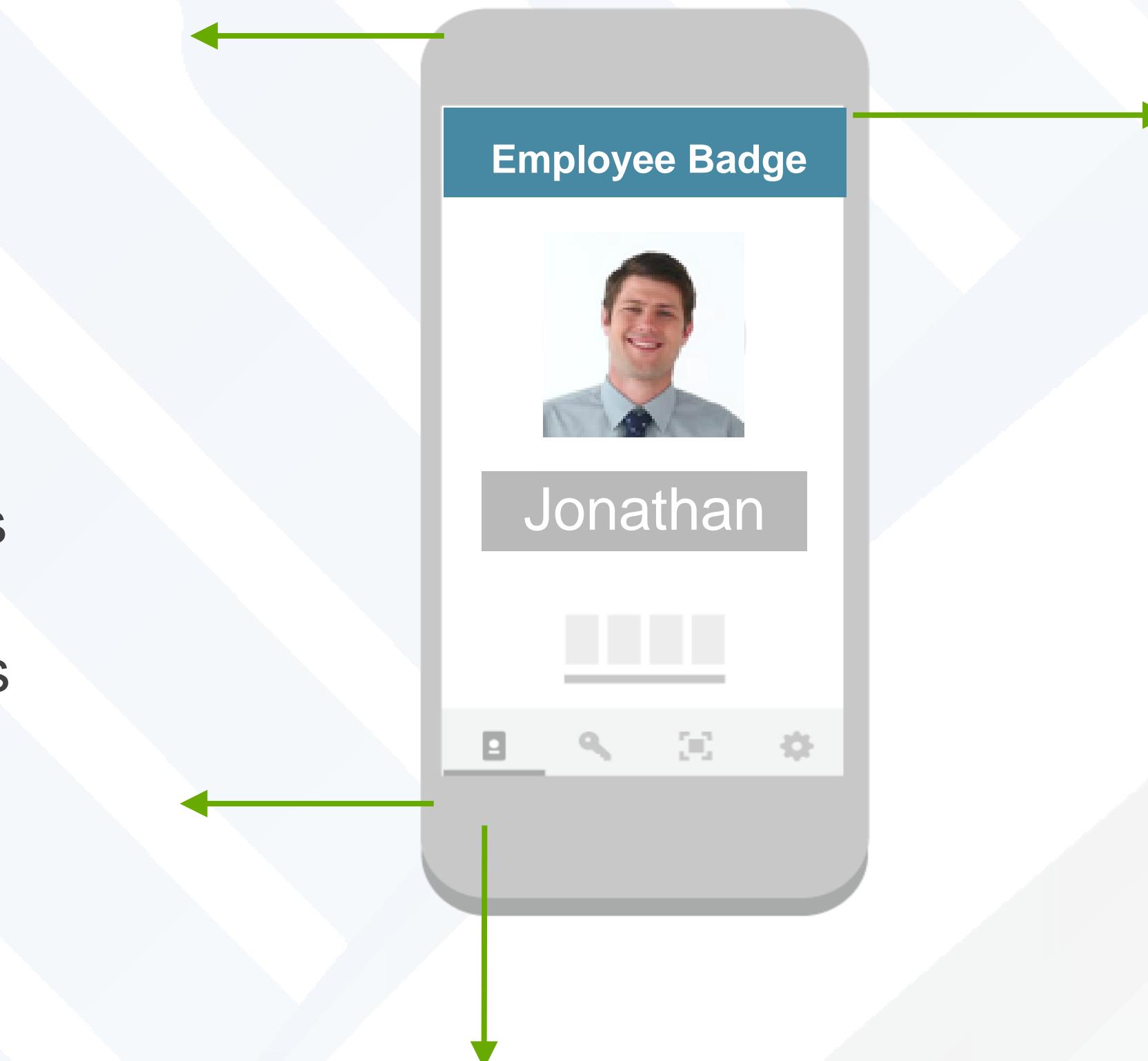
Trusted mobile identity for applications, security, and telemetry

Telemetry Identity Intelligence

- GPS with Tracking
- Bluetooth & Beacon Proximity
- Device & Access Logs / Metrics
- Secure 2-Way Communications

Security Flexible Authentication

- Identity / Authentication
- Multi-Factor / Biometric
- Location-based
- Day / Time-based



Analytics Insight and Compliance

- Personal
- Real-time
- Statistics
- Mapping

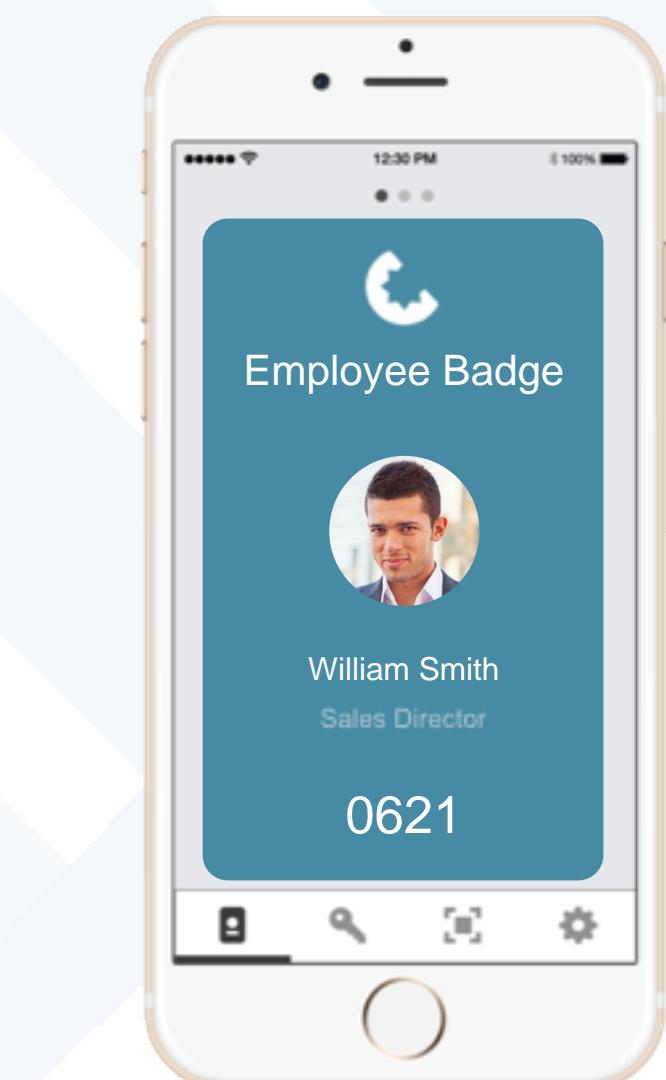
Functionality Unified Access Control

- Access Facilities
- Logon to Apps / VPNs
- Lock / Unlock Computer
- Check-In / Location
- Manage Workforce
- Custom (SDK / APIs)

CRITICAL CAPABILITY: PHYSICAL ACCESS

Enterprise IoT

Control	Control entryways in your facility via a digital badge
Unlock	Unlock entryways by touching a digital key, scanning a QR code, tapping an NFC tag, or walking up to a BLE beacon or Bluetooth badge reader
Enhance or replace	Enhance or replace existing access cards for employees, contractors, and visitors
Consolidate	Consolidate multiple physical access control systems throughout an enterprise



- Digital key
- Bluetooth reader
- Beacon
- QR scan
- NFC tag



Security controls applied

- Second factor
- Biometric
- Geo-fence
- Time lock

Telemetry captured

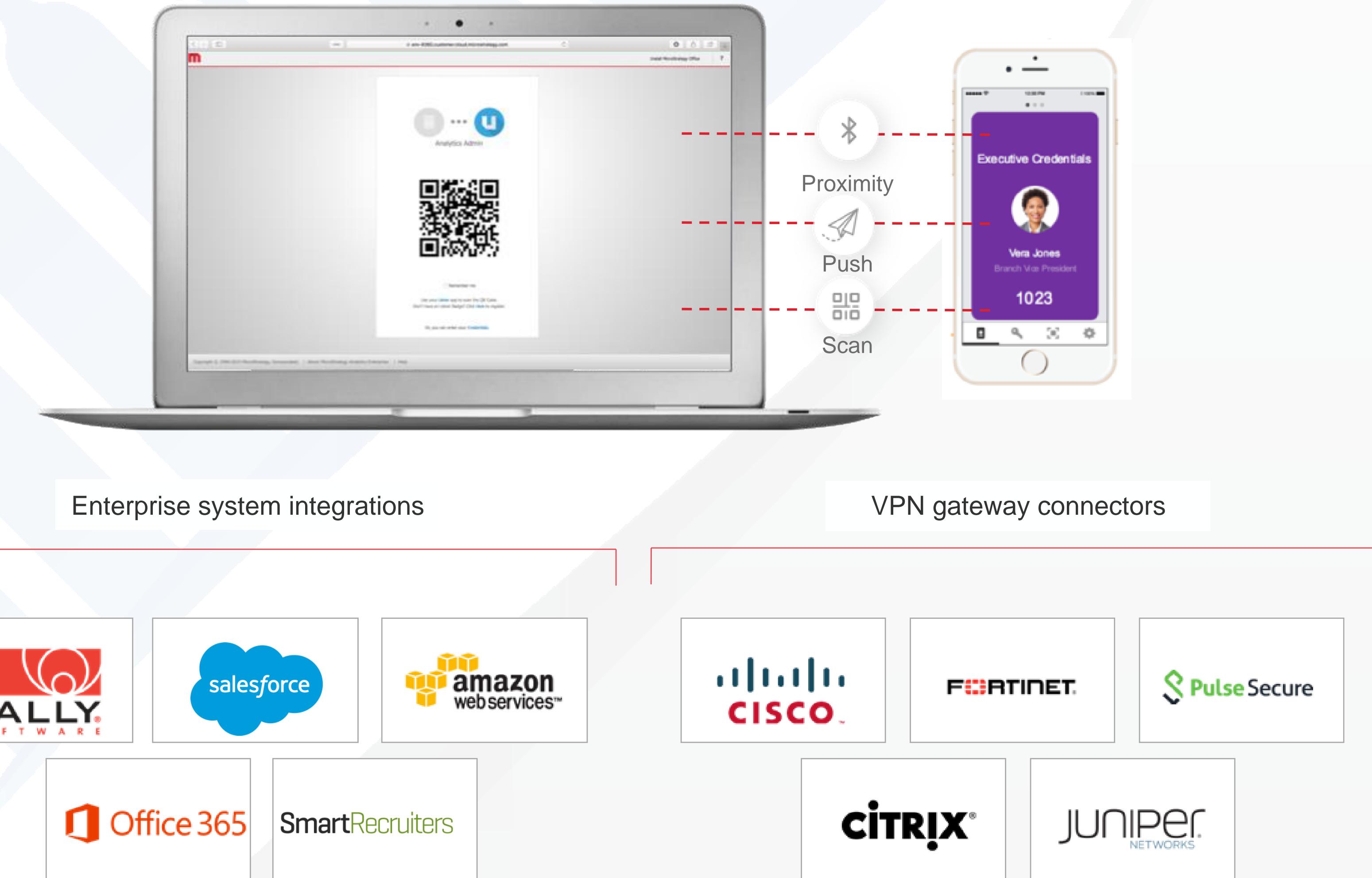
- GPS log and tracking
- Bluetooth log and tracking
- Action log
- A basis for analytical applications

CRITICAL CAPABILITY: LOGICAL ACCESS

Enterprise IoT

A combination of strong authentication methods to access applications, VPNs, and workstations

- Add strong authentication to logical systems in your organization
- Choose interactive and/or zero-click, proximity-based authentication options based on context
- Identity system should be compatible with SAML, OpenID Connect, and RADIUS protocols
- Should support OOTB integrations with enterprise systems and cloud applications

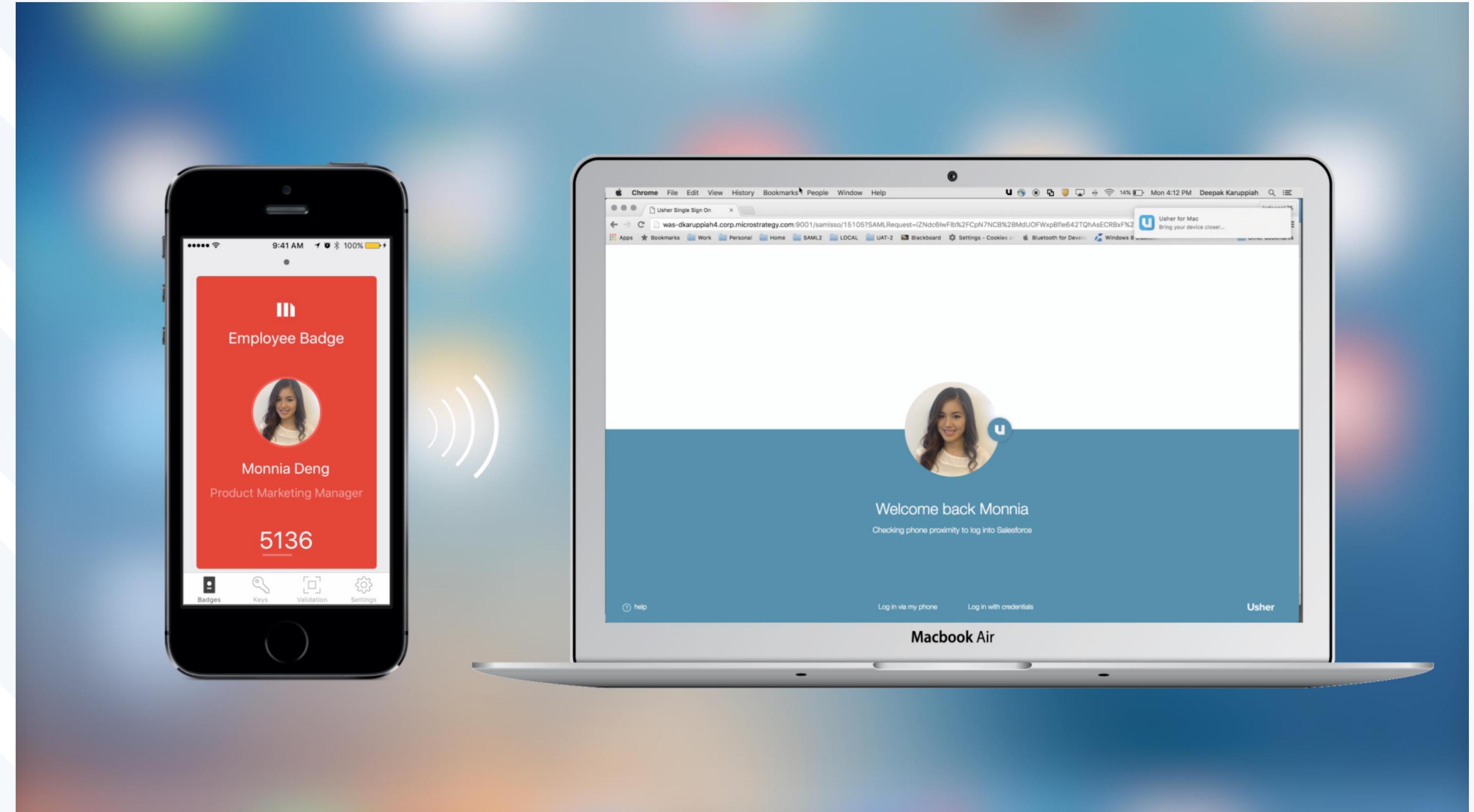


CRITICAL CAPABILITY: BLUETOOTH PROXIMITY SENSING

Enterprise IoT

Bluetooth can enable contextual interactions, security, and seamless user experiences

- Real-time micro-locational awareness of enterprise assets
- Personalized experiences through identity projection
- Users are empowered to walk up to doorways and systems and access them immediately without manual authentication
- Configure in three ways: proximity logging, physical access, and integration with logical workflows



CRITICAL CAPABILITY: BARCODE SCANNER

Enterprise IoT

Link badge holders with a person, place or thing identified by a barcode or QR code

- Think asset inventory & ownership
- Scan virtually any kind of QR or barcode tag
- Log a secure linkage between an employee and something or someone being interacted with
- Track non-connected assets using labels and tags with bar or QR codes
- Improve process auditing and enforcement for customer service, maintenance, and more

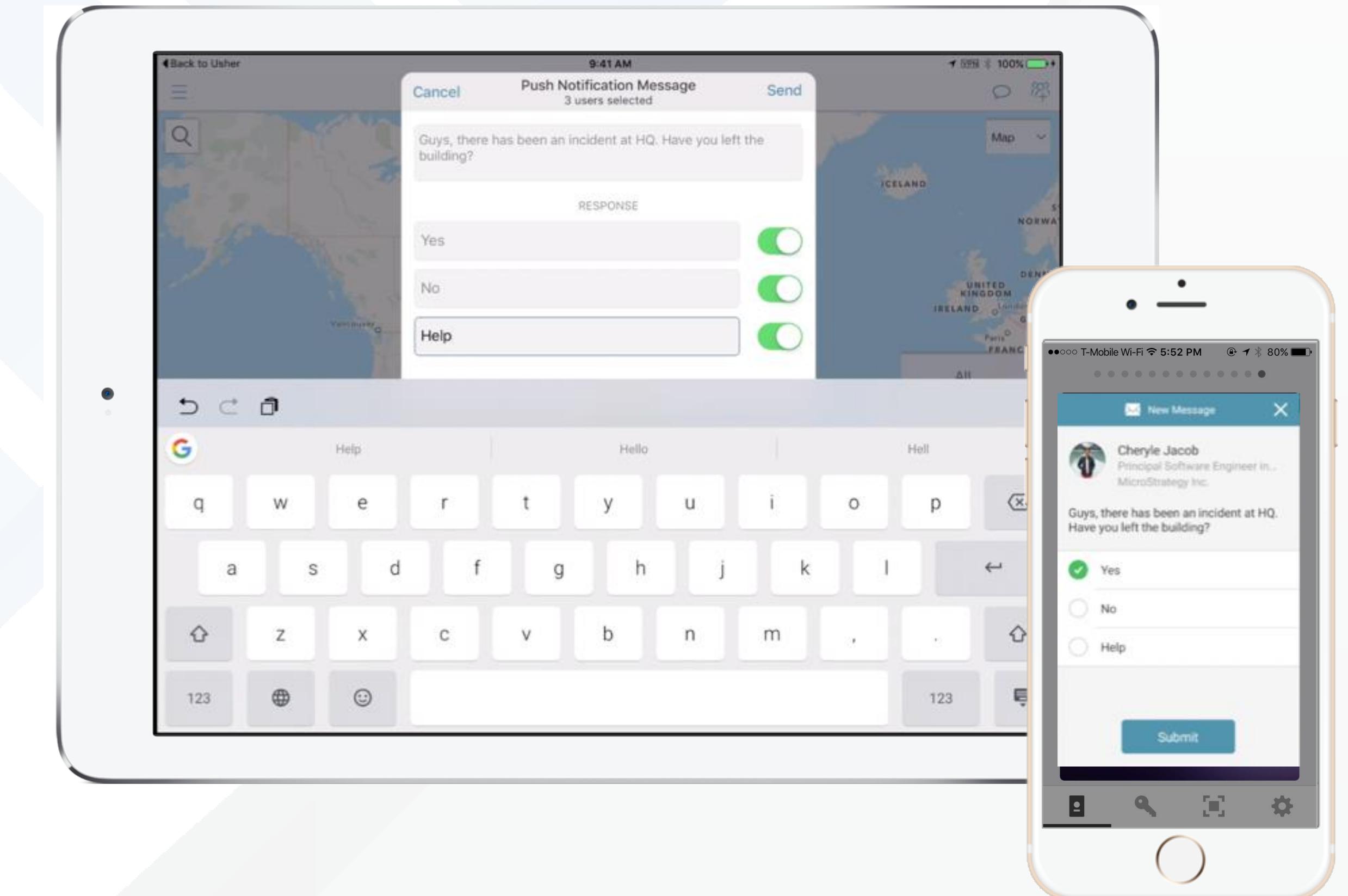


CRITICAL CAPABILITY: COMMUNICATION AND COLLABORATION

Enterprise IoT

Allow managers to identify, coordinate, and communicate with other users

- Incident response and multi-channel communication
- Quickly confirm identity of remote user
- Anomaly notification & approval (e.g., large purchase approvals)
- Increased visibility enables management and decisions to be more timely, informed, and collaborative

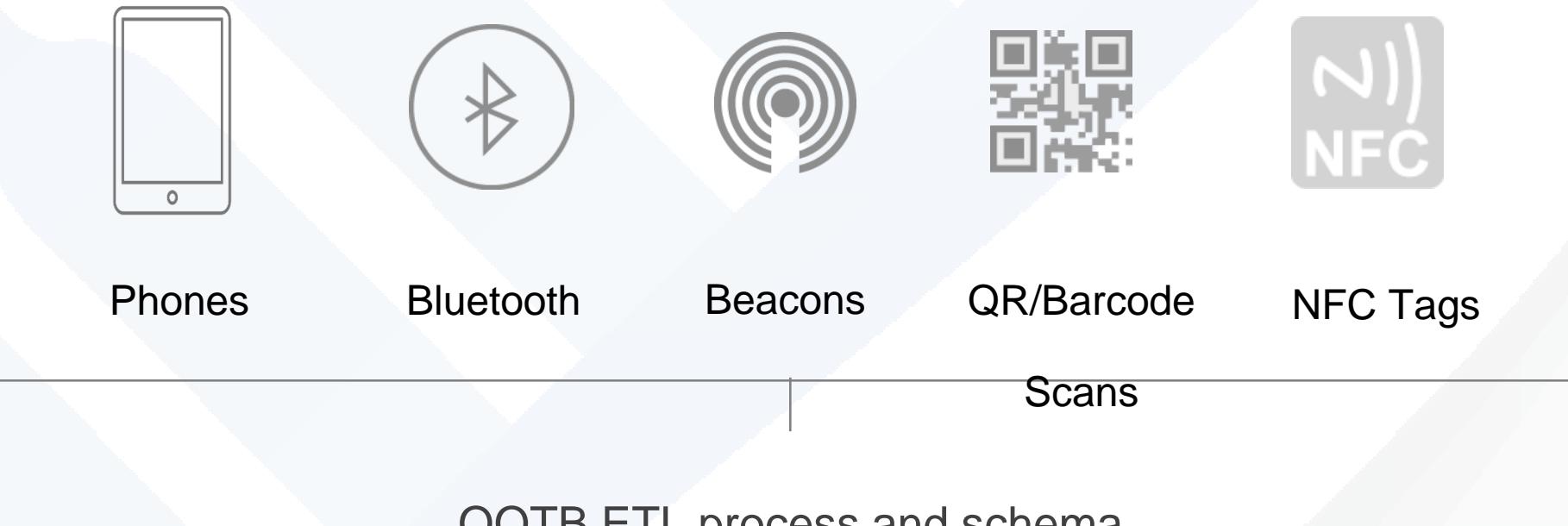


CRITICAL CAPABILITY: REAL-TIME TELEMETRY

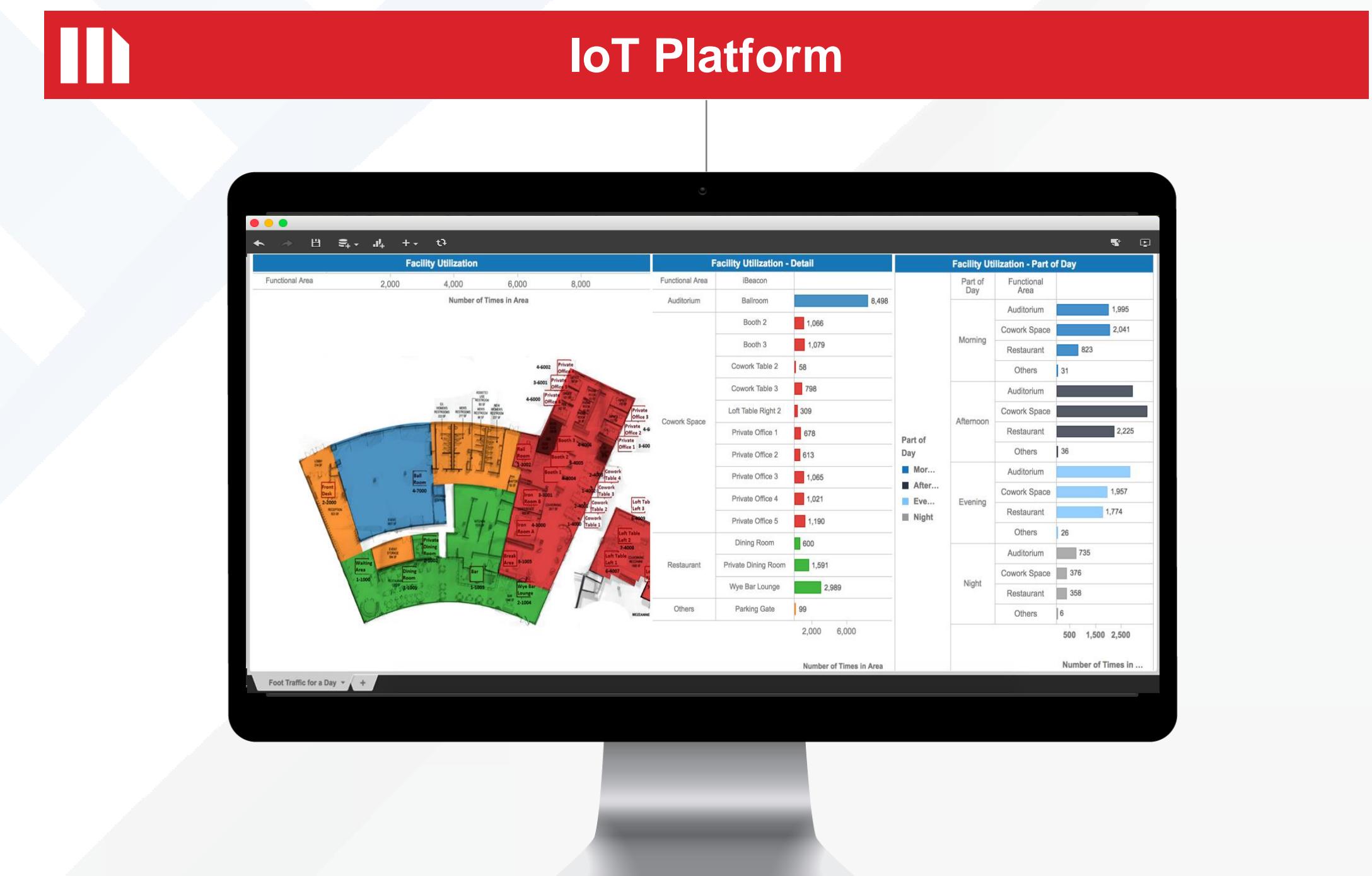
Enterprise IoT

Collect data from your enterprise in real-time

- Leverage employee interactions with physical and logical assets
- Aggregate thousands of data points a day via smartphones, beacons, and asset tags
- Build IoT applications and paint a comprehensive picture of application usage, facility utilization, and employee activity
- Streaming system and statistics logging
- Possible via an Apache Kafka cluster delivering a commit log service



OOTB ETL process and schema

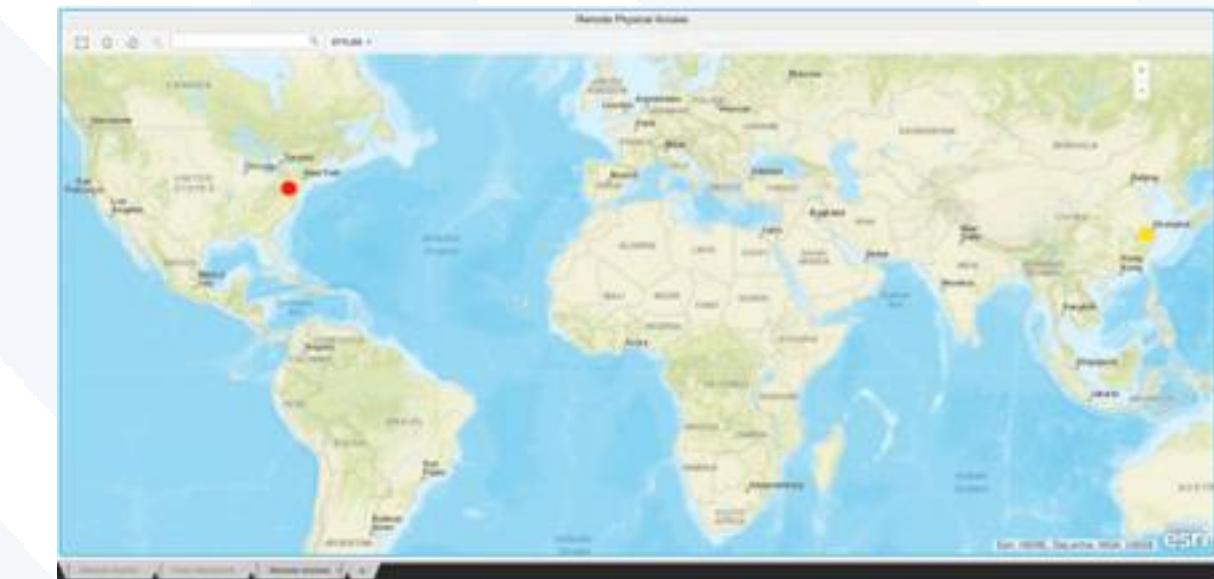


CRITICAL CAPABILITY: REPORTING

Enterprise IoT

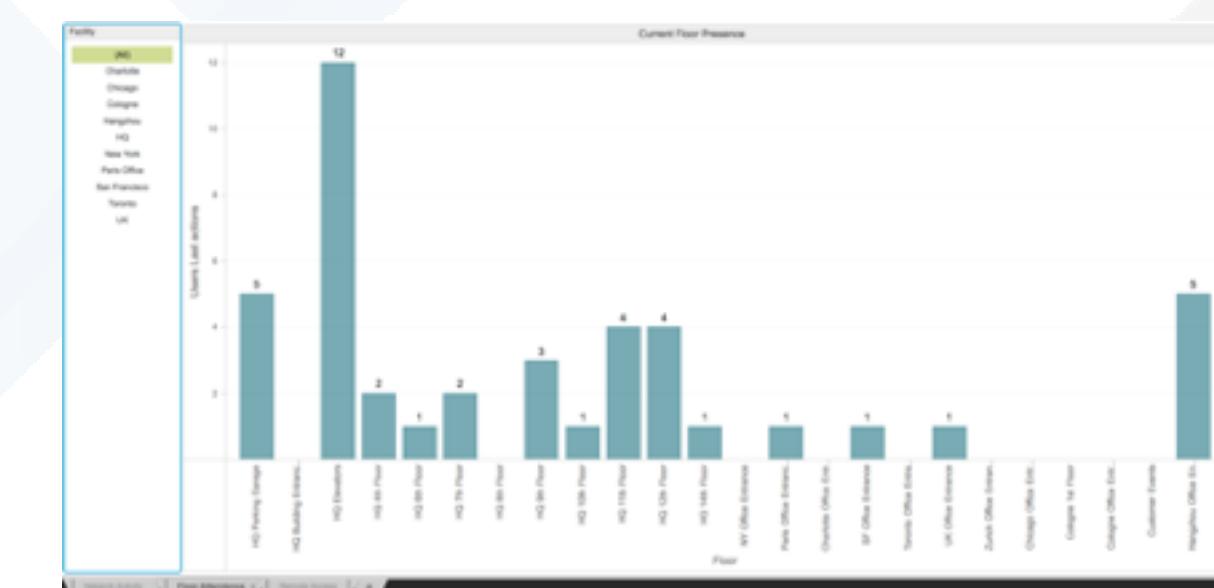
Relevant reports optimized for different transaction types or blended for unique insights

- Pulls data from all assets and access points to deliver visibility into interactions between enterprise constituents and assets
 - Can help optimize operations, security, compliance, and customer experience



Spot outliers on a map

Audit individual-level access



See which physical spaces users are in



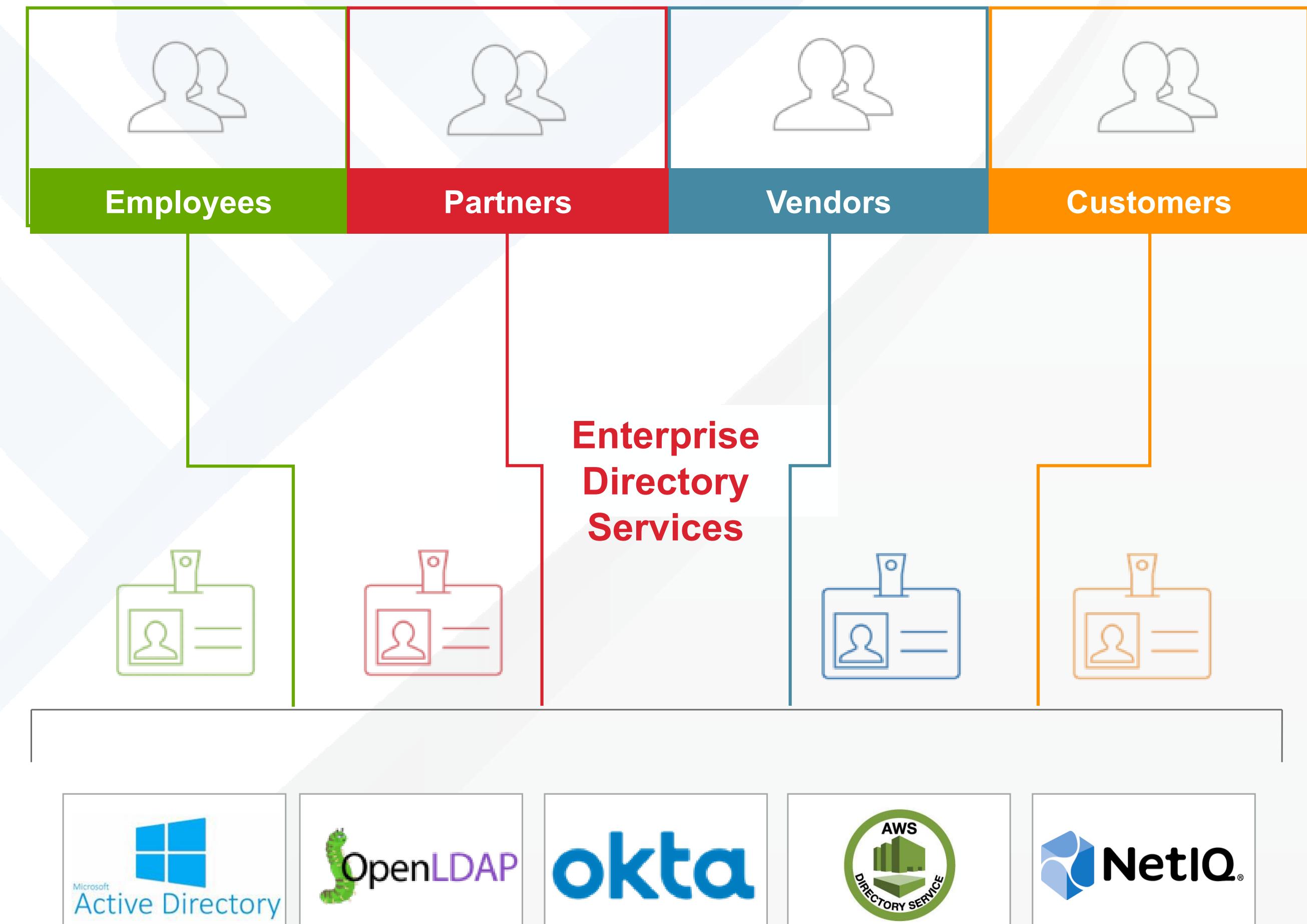
Monitor resource utilization

CRITICAL CAPABILITY: INTEGRATED WITH DIRECTORY SERVICES

Enterprise IoT

Synchronize to directory services as an authoritative source for person-records and attributes

- Must support the enforcement of directory provisioning for authorization (privileges, entitlements and restrictions)
- Should support pre-built directory integrations; compatible with the OpenLDAP standard



CRITICAL CAPABILITY: IDENTITY SERVER

Enterprise IoT

Enable administrators to manage a network of users and configure relationships that prompt, enable, or secure interactions of assets within the network

- Enable admins to create, configure, distribute, revoke, and manage fine-grained aspects of digital identities (badges) for users
- Establish a Registration Authority for verifying the identity of a user and issuing an access token
- Leverage FIDO Alliance-certified on a UAF protocol to deliver password-free authentication
- Ideally base on public key cryptography; strongly resistant to phishing

Manage User Roles

Network Administrators can log into Network Manager and have the full range of privileges to create, delete, or modify networks. This role has access to manage and configure the badge and its properties, users and roles, and gateways.

User	Network Administrators	Usher Professional Analysts	Help Desk Specialists
Tim Lang Tlang@microstrategy.com			
Abhijeet Roy Aroy@microstrategy.co			
Chris Holland cholland@microstrateg			
Ciro Martinez cmartinez@microstrate			
Clayton Myers cmyers@microstrategy			
Darrell Geusz dgeusz@microstrategy			
Grant Szabo gszabo@microstrategy			

Manage Badge Properties

Basic

Requirements

Authentication

Location

Time

Device Security

Policy

Provisioning

Directory Agent

HID

Zero-Click

Secure with Fingerprint or App Passcode

Choose one of the authentication options below as a requirement for using the badge.

Fingerprint Verification Only
Require users to have Apple Touch ID or select fingerprint-enabled Android devices in order to use the badge. Users with unsupported devices will not be able to use the badge.

Fingerprint Verification or App Passcode
Require users with Apple Touch ID or select fingerprint-enabled Android devices to verify their fingerprint in order to use the badge. Users who do not have devices with supported fingerprint capabilities will be required to enter an app passcode instead.

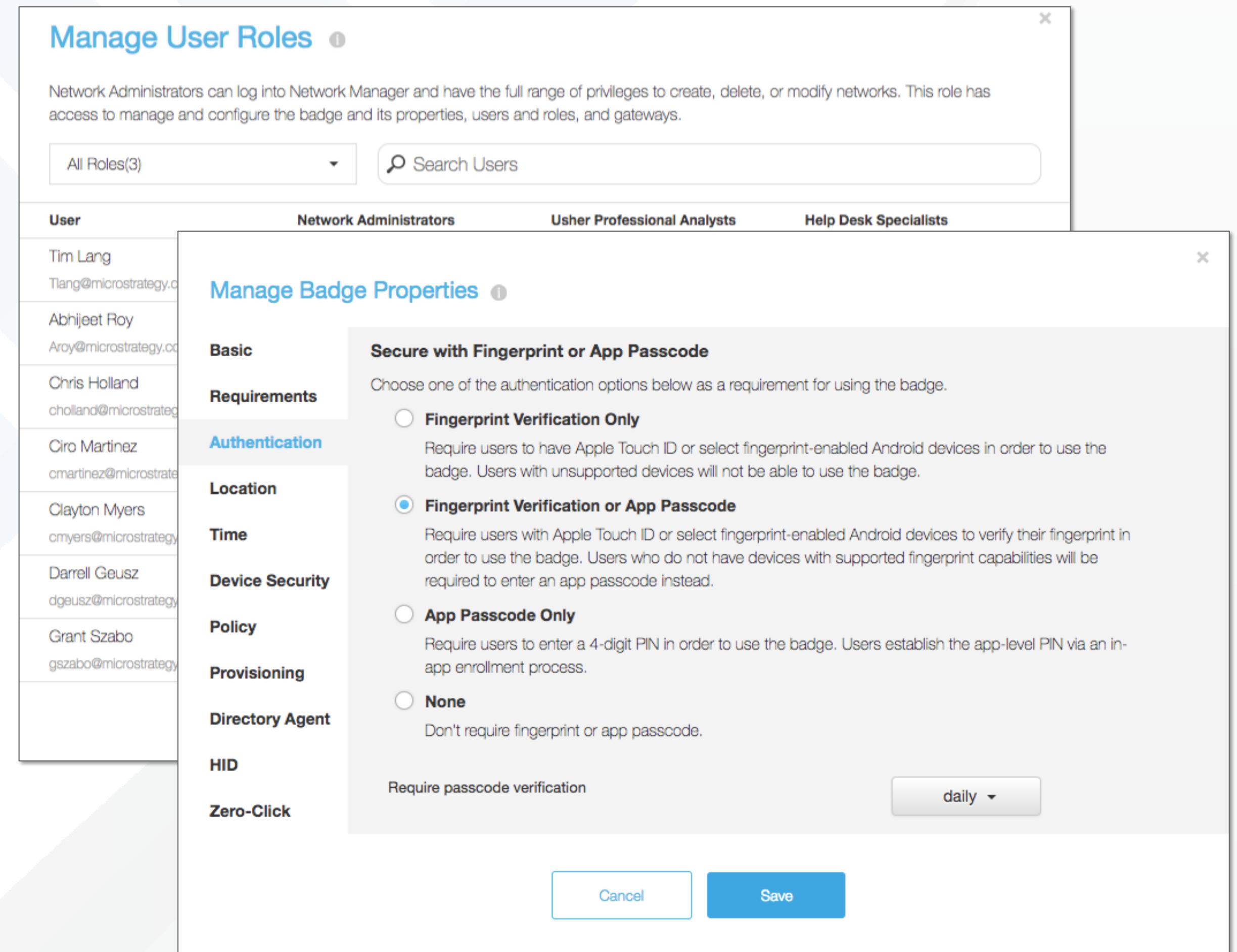
App Passcode Only
Require users to enter a 4-digit PIN in order to use the badge. Users establish the app-level PIN via an in-app enrollment process.

None
Don't require fingerprint or app passcode.

Require passcode verification

daily ▾

Cancel Save



**BRINGING
IT ALL
TOGETHER**



ENTERPRISE INTERNET OF THINGS: BRINGING IT ALL TOGETHER

The digital badge can capture information from different types of touchpoints throughout the day, logging 1000s of lines of machine-like transactions

Scans barcode while buying lunch at cafeteria for loyalty points

Validates identity over phone with helpdesk using Usher code

Accesses garage lift-gate, elevator, and office floor using beacon sensing

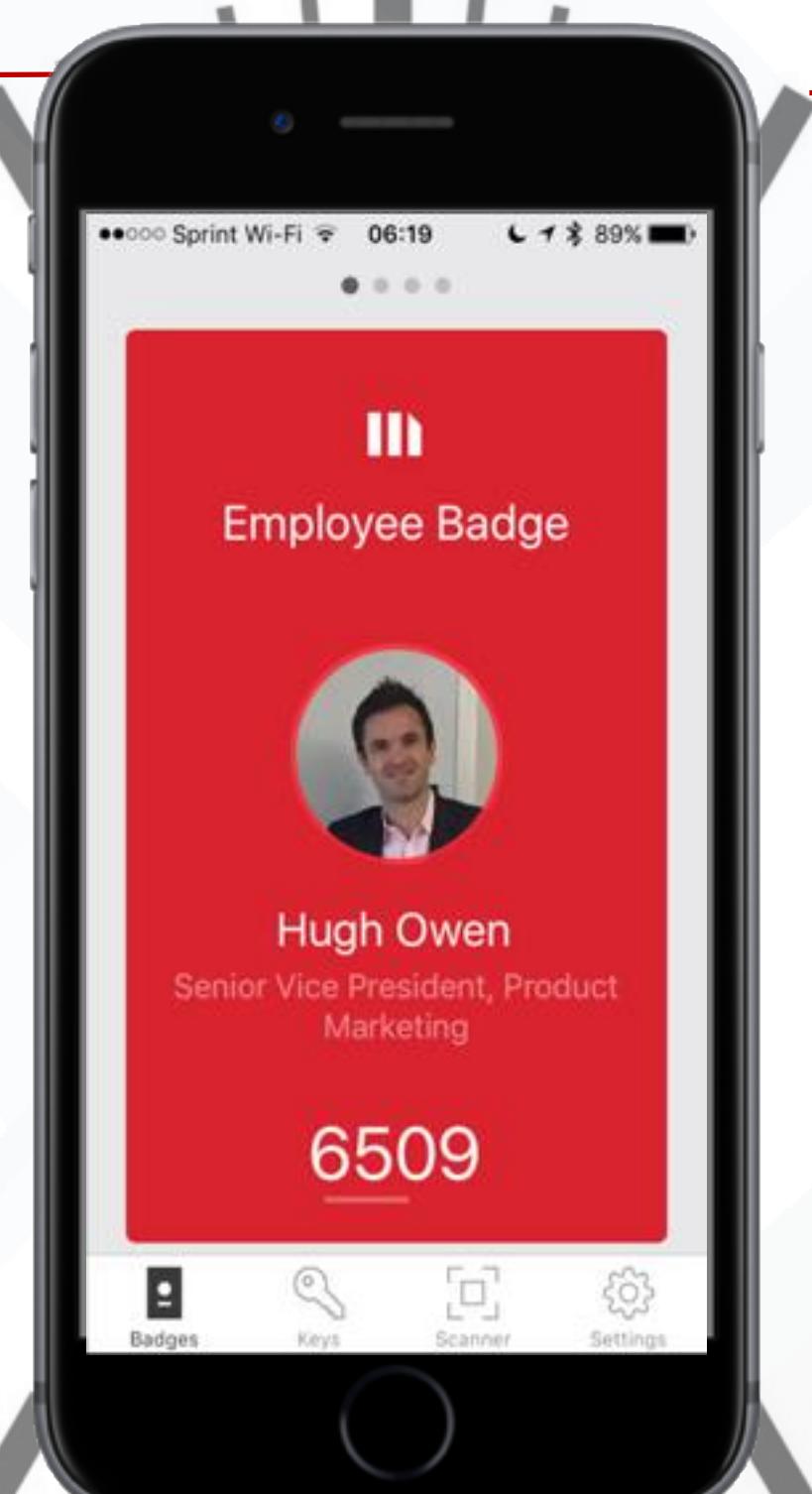
Uses two-factor to VPN into business system from home

Attends workout class; attendance automatically logged via beacons for fitness competition

Uses web SSO to switch between web-based applications and log progress on team projects

Locks work computer via Bluetooth proximity

Scans QR code to validate parking and leave for the day



ASSET UTILIZATION

A big data application that combines operational and configuration, historical and real-time data to provide insights into asset availability, reliability and operational efficiency

Isolate asset analysis and critical metrics to evaluate work order, scheduling and workflows

Analyze, by category asset, performance & operating conditions



Easily identify the availability of your assets anytime, anywhere to prioritize and optimize resources

Use predictive analytics to monitor asset health and determine maintenance decisions

The Challenge

Companies need to overcome informational silos to gain a comprehensive understanding on how to improve asset availability and achieve efficiency goals.

The Solution

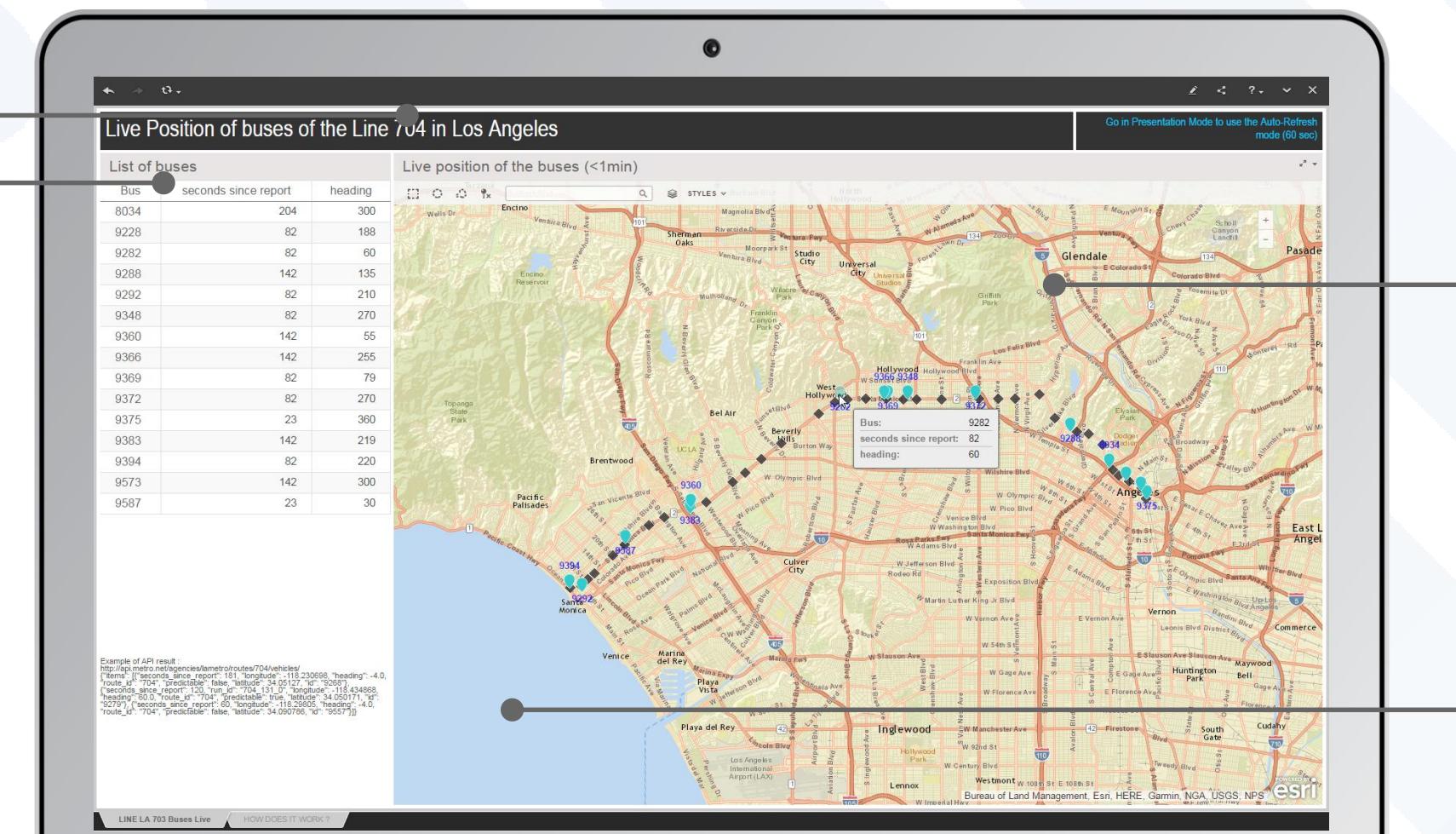
- Increased visibility of all assets is invaluable to improve process efficiencies and increase their return on assets
- Allows the creation of applications that can incorporate optimization models for capacity planning, resources management and work scheduling
- Utilizing Dashboards can help balance the lowest operational cost with the utilization loads of your asset portfolios
- Leverage native gateway & drivers that connect to multiple data lakes and unify in one place asset lifecycle and maintenance management activities

FLEET MANAGEMENT

An application with accurate telematics data collection across vehicles to enable visibility into critical variables to ensure proper function and performance

A single view that blends cost contribution and vehicle specific data

Reports that auto-refresh every minute to get visibility into vehicle performance & location



Deliver personalized data, like route and area information, by applying role-based security

Visualizations that show fleet utilization and age allowing quick decisions on vehicle maintenance

The Challenge

Managers need to analyze data coming from disparate sources to run simulations and predict scenarios that can maximize resources and efficiency.

The Solution

- Enable ability to blend data originating from sensors placed on all parts of the fleet
- Allows managers to know where vehicles and drivers are at all times
- Ability to perform predictive analytics to identify potential problems, based on costing information, utilization, and asset age
- Allows remote evaluation of specific situations based on input from drivers to make timely and accurate data-based decisions

FILE VIEW FORMAT

? X

Live Position of buses of the Line 704 in Los Angeles

[Go to Presentation Mode to use the Auto-Refresh mode \(60 sec\)](#)

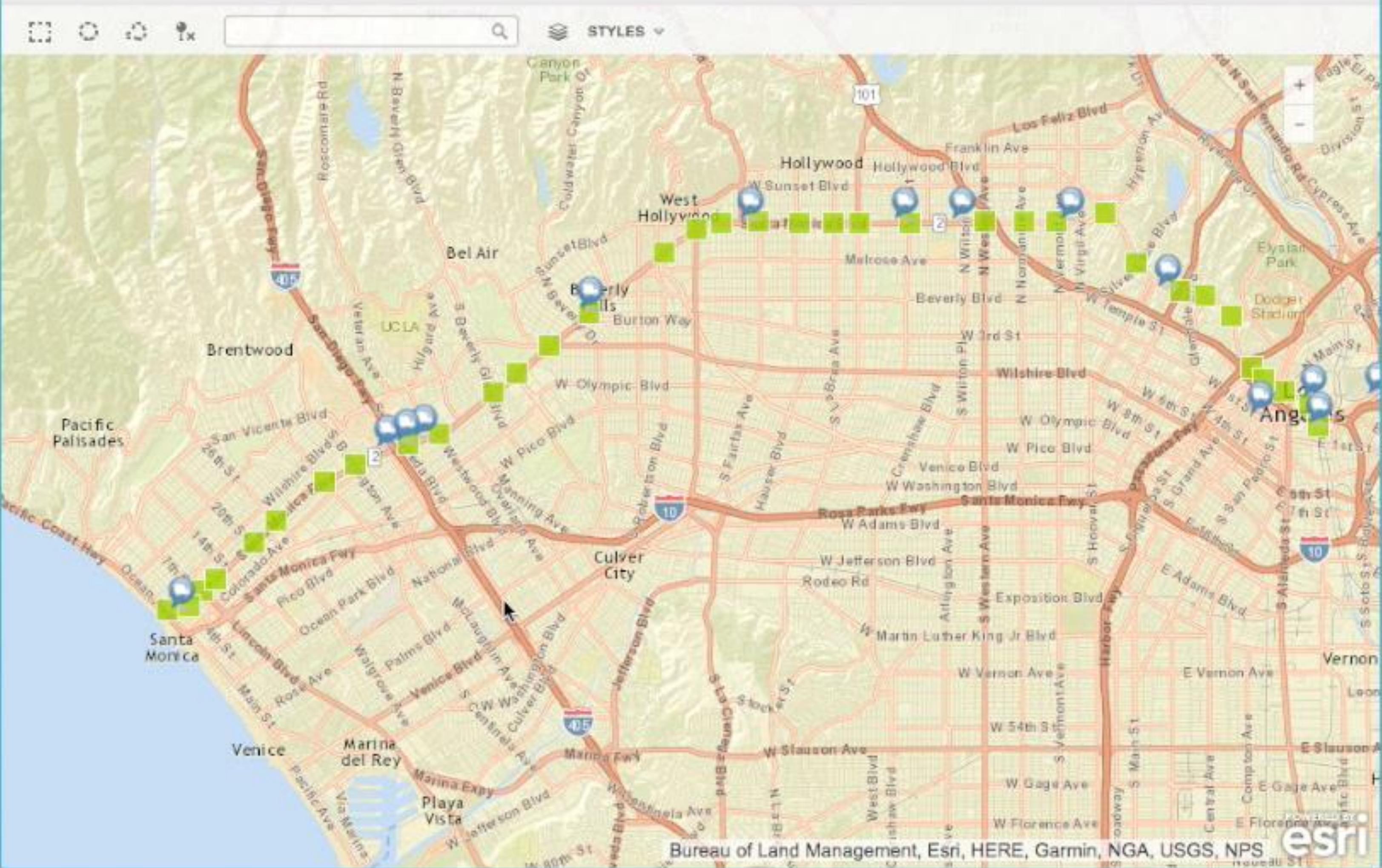
List of Buses

Bus	Heading	Seconds since report
5986	89	142
8037	210	142
8061	248	22
9201	270	22
9278	225	202
9296	45	22
9311	219	142
9348	60	22
9352	-4	22
9357	255	22
9370	255	82
9375	21	82
9390	135	142
9573	-4	82

Example of the API result:

```
http://api.metro.net/agencies/lametro/routes/704/vehicles/
{"items": [{"seconds_since_report": 73, "run_id": "704_124_1", "longitude": -118.230659, "heading": 219.0, "route_id": "704", "predictable": true, "latitude": 34.051243, "id": "9356"}, {"seconds_since_report": 193, "run_id": "704_131_0", "longitude": -118.358788, "heading": 90.0, "route_id": "704", "predictable": true, "latitude": 34.090759, "id": "9211"}, {"seconds_since_report": 73, "run_id": "704_131_0", "longitude": -118.276352, "heading": 150.0, "route_id": "704", "predictable": true, "latitude": 34.088341, "id": "9218"}, {"seconds_since_report": 73, "run_id": "704_147_1", "longitude": -118.477905, "heading": 225.0, "route_id": "704", "predictable": true, "latitude": 34.030506, "id": "9369"}]}
```

Live position of the Buses



PREDICTIVE MAINTENANCE

Scorecards that monitor diagnostic sensor data, analyze patterns and trends and predict when a component is likely to fail for a more cost-effective maintenance model

Filters that show operating parameters' status by specific dates

Thresholds that allow to easily identify asset health and critical breakdown times



Track assets across different areas of a building to predict when a component is likely to fail

Visualizations that analyze asset usage and patterns over time at different levels of detail

The Challenge

Companies are challenged with managing vast amount of information to reduce the total spend on preventive and predictive maintenance.

The Solution

- Achieve higher uptime and asset longevity
- Monitor equipment condition and operating parameters to automatically trigger maintenance alerts
- Blend data from different sources to identify small undetected problems that can cascade into a much bigger issue
- Write-back into OEM service systems and create a fully automated maintenance model





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**THANK YOU
PLEASE FILL OUT YOUR EVALUATIONS!**

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