



What to Consider When Selecting a Platform for IoT App Development

September 22nd, 2015

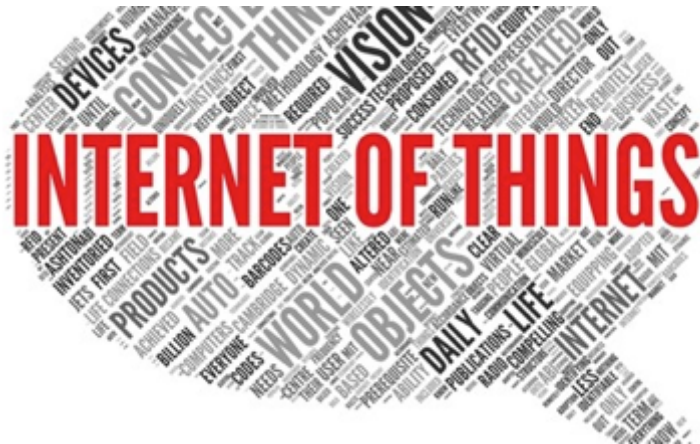
Agenda

- Speaker and Topic Introductions
- IOT Definitions and Trends
- Discussion on IoT Platforms and App Development

Today's Speakers



Brian Partridge
Vice President,
451 Research



Richard Mendis
Chief Product and Marketing
Officer, AnyPresence

451's Definition of IOT

The Internet of Things is the interconnected set of intelligent devices and objects that enable the **virtualization** of the **physical** world.

Nearly every type of business that exists today can employ IoT systems to create cost savings, efficiencies or support new business models.

Today potential has NOT been realized

M2M vs. IoT

M2M

- Mature
- Healthy growth ~20% CAGR in connections
- 200+ million connections
- Vertically integrated/proprietary
- ROI typically cost savings

IoT

- Just starting
- Billions of connections by 2020
- Open/standardized
- Cloud/big data dependent
- ROI costs savings and new revenue models

IoT and M2M Phases

1990s - 2020

M2M Phase

Typical applications: Remote asset monitoring, fleet management

System Characteristic: Single purpose industrial applications connecting via proprietary networks to datacenter

Service Providers Focus on:

End to end proprietary designs

2010 - 2016

IOT Silo Phase

Typical applications – connected home monitoring, wearable computing, connected cars

System Characteristic: Single purpose applications connecting to Internet/ Cloud

Suppliers focus on:

Speed to market/features

2016 - 2025

IOT Systems

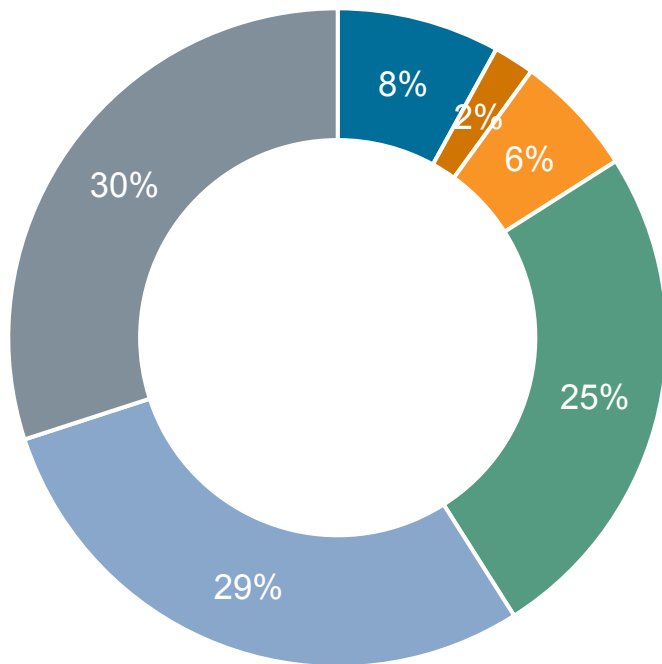
Typical applications: connecting IOT data silos to create new value/ insights

System characteristics: Multiple applications working in concert, connected and integrated in the Cloud and at the network edge.

Suppliers focus on:

Integration/Scale/Security/Data Analytics

IoT Adoption Snapshot

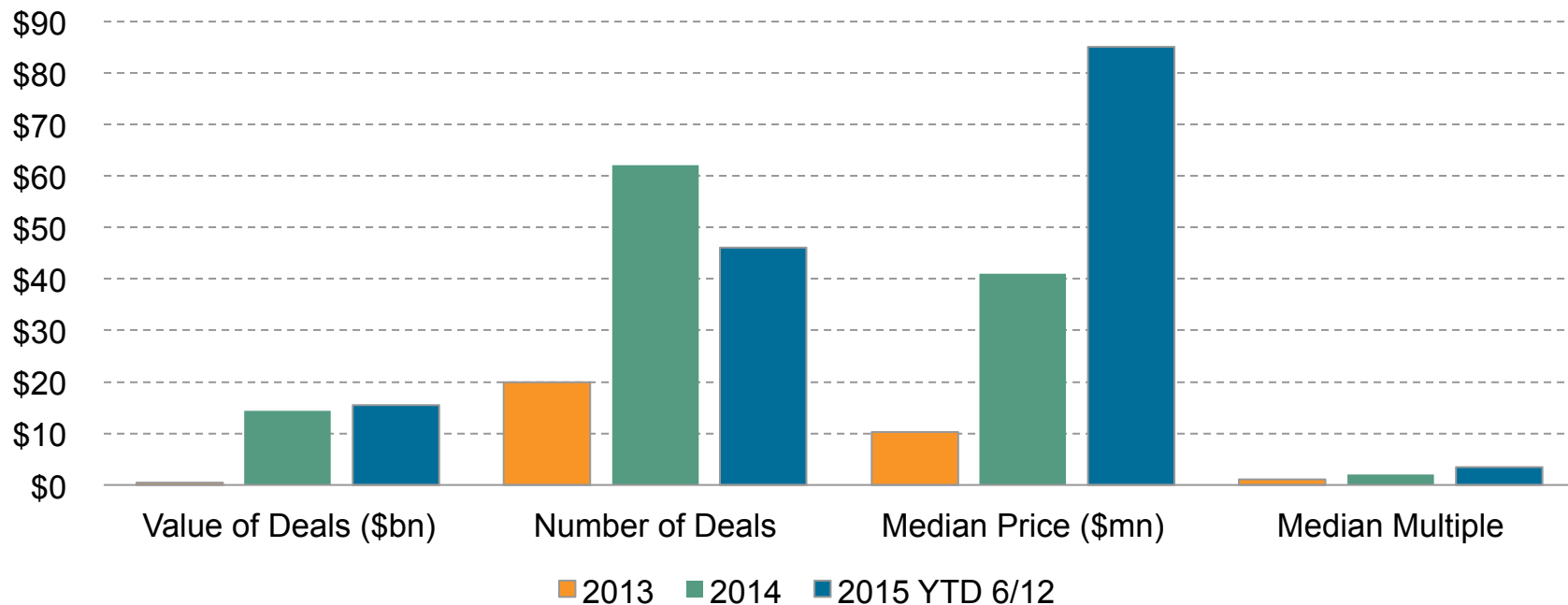


Which of the following best describes your company's plans for the use of 'Internet of Things' (IoT) technology?

Source: 451 Research – ChangeWave

- Already Using
- Plan to Begin to Use in the Next 6 months
- Plan to Evaluate/Test in Next Six Months
- No Plans Currently, but Considering for Future
- No Plans Currently, not Considering for Future
- Don't Know

IoT Driven M&A Activity Accelerating



Source: 451 Research – M&A Knowledgebase

IoT Market Drivers

Falling Costs

- Edge computing
- Bandwidth

Improving Tools

- Cloud
- IOT Platforms
- Analytics

Market forces

- Market education
- Competition
- Government

Limitless Application

Home

- Lighting
- Security
- Pets
- Appliances

Manufacturing

- Factory automation
- Supply chain

Buildings

- HVAC
- Security
- Datacenter

Healthcare

- m-health
- Home care
- Wearable monitors

Cities

- Parking
- Surveillance
- Energy
- Fleet mgmt

Transportation

- Rail
- Traffic routing
- Self driving
- Vehicle telematics

New Services

- New business models
- Pay per use
- Outcome based

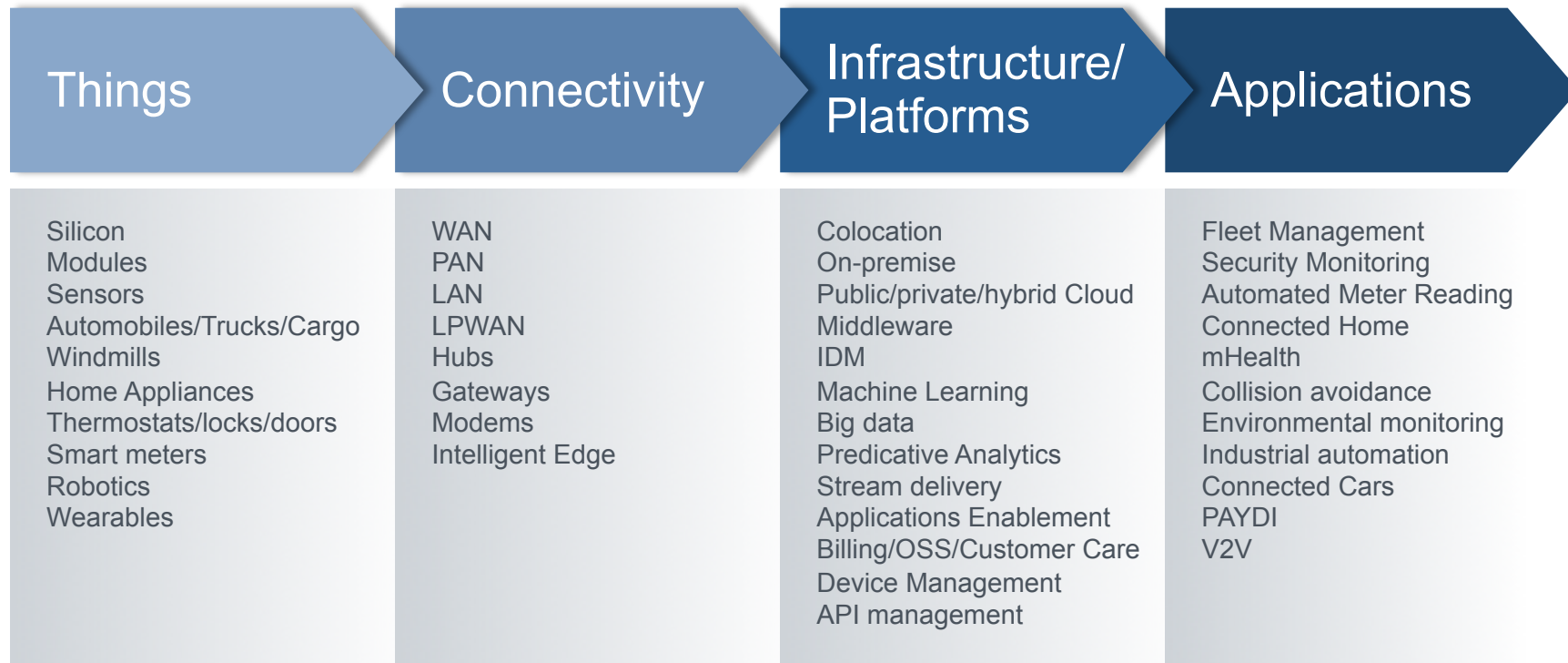
OPEX Savings

- Lower energy bills
- Fewer product returns
- Asset utilization

Greater Customer Engagement

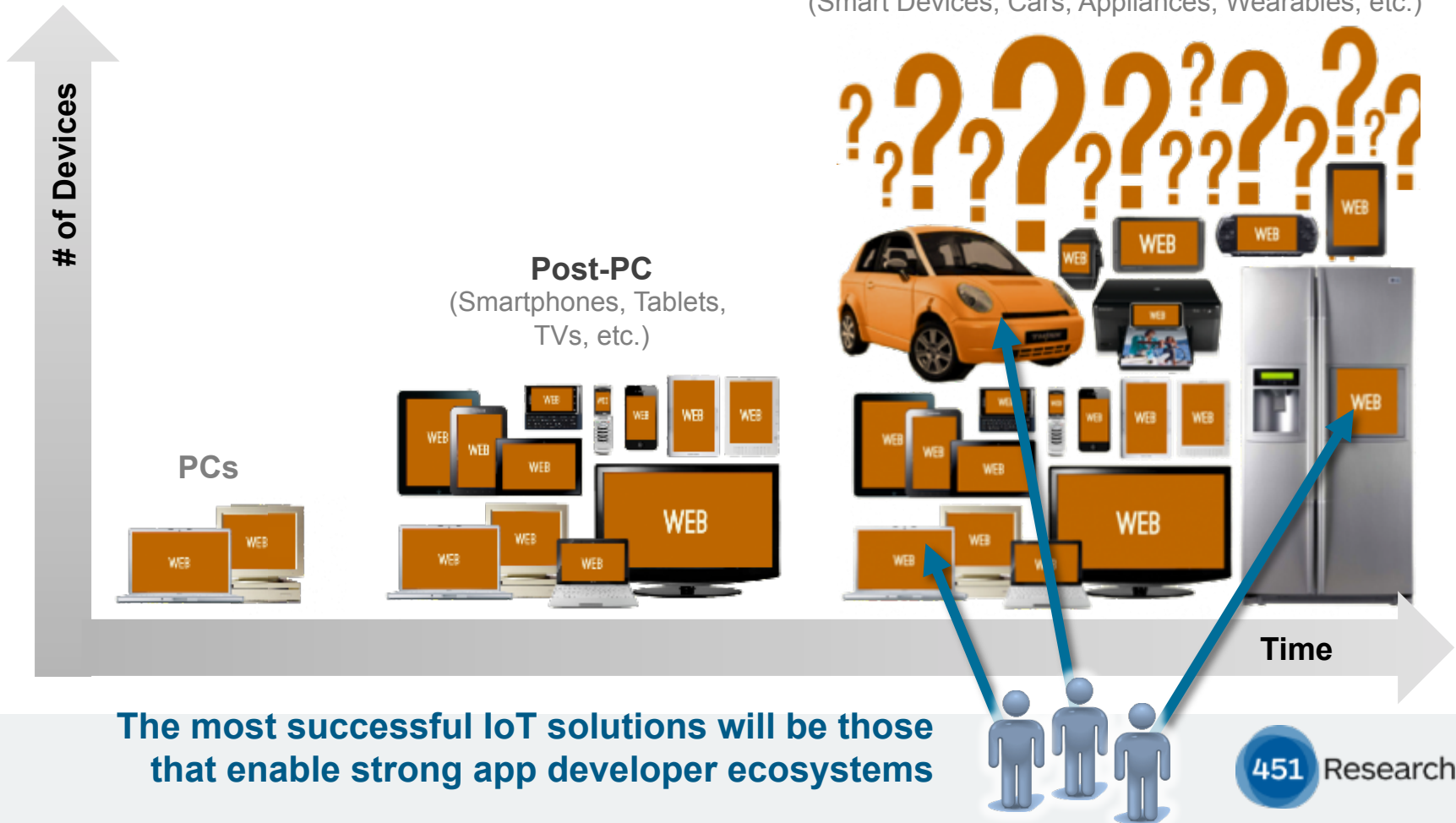
- Instant feedback
- Continuous performance monitoring

The “Simplified” IoT Value Chain



Internet of Things

(Smart Devices, Cars, Appliances, Wearables, etc.)

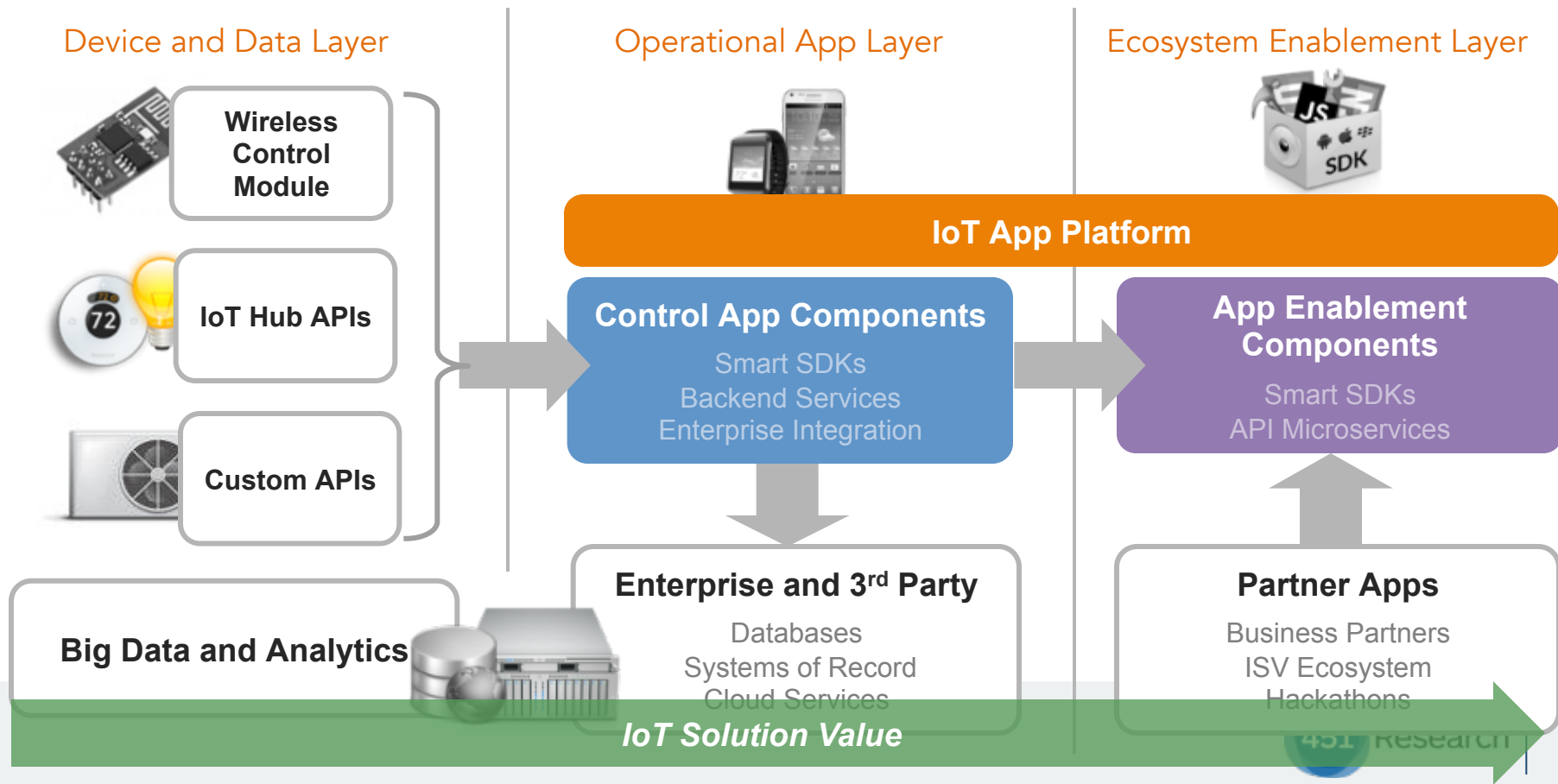


The logo for 451 Research, featuring the number '451' in a white circle on a blue background, followed by the word 'Research' in white text.

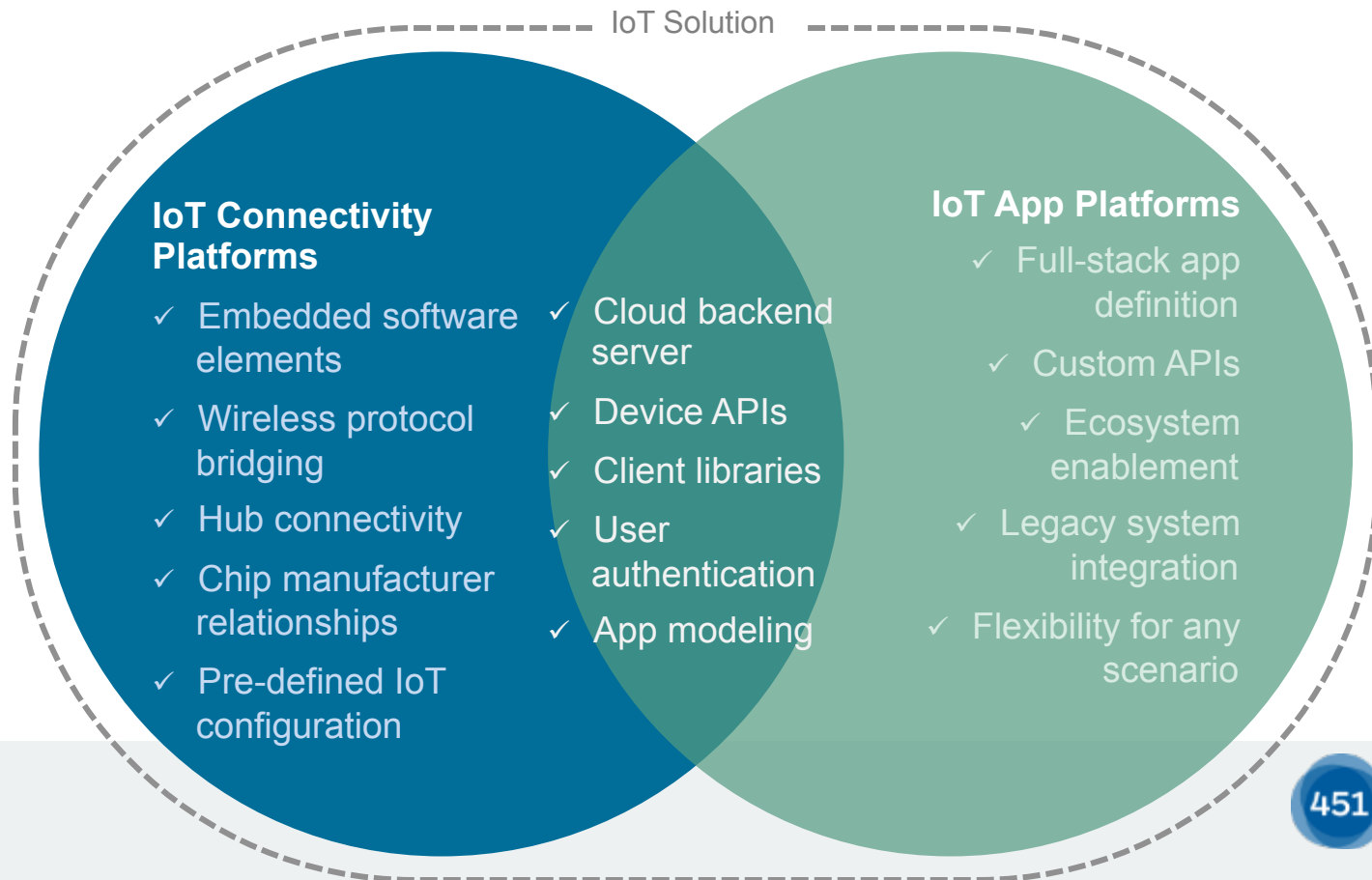
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Discussion With 451 and AnyPresence

IoT Solution Functional Layers



IoT Connectivity and App Solution Overlap



Presentation
Layer (UI)



Client-side
Modeling (SDK)



- Client Side Data Model
- Custom Object Classes
- Connectivity to APIs
- Local Caching
- Test Scripts
- Documentation

Application
Services
(MBaaS)



- App Services and Business Logic
- Role Based Access
- Enterprise Integration
- Device and User Registration

Web Services
Gateway



- Custom API Definition
- Proxy to Source APIs and Device Hubs
- Business Workflow
- Simulate Device Control APIs

Publish IoT App Templates

Custom IoT
Developer Portal

- Customizable apps with UI Kits, SDKs, and Backend Server
- Non-proprietary, editable source code
- Instant Cloud Sandbox Environments
- Pre-built connectivity to real or simulated device APIs and data
- Support innovation labs and hackathons
- Works with existing portals and API management solutions

App UI Starter Kits

- ✓ Fully-working app
- ✓ Editable source code

An IoT app platform can help to lower ecosystem development hurdles, and improve adoption

Cross-platform SDKs (+docs)

- ✓ Drop into app project
- ✓ Familiar syntax

Mobile Backend Server

- ✓ Mobile optimized APIs and abstraction layer
- ✓ App-specific services, business logic, data persistence, push, sms, etc.

Device APIs Endpoints Only

- ✗ Limited app services and functionality beyond device control
- ✗ Not easily customizable or editable by app developers

IoT APP DEVELOPMENT TIMEFRAME



Development Expectation Gap

70%

of app project costs
are associated with
integration to
enterprise services
and data sources

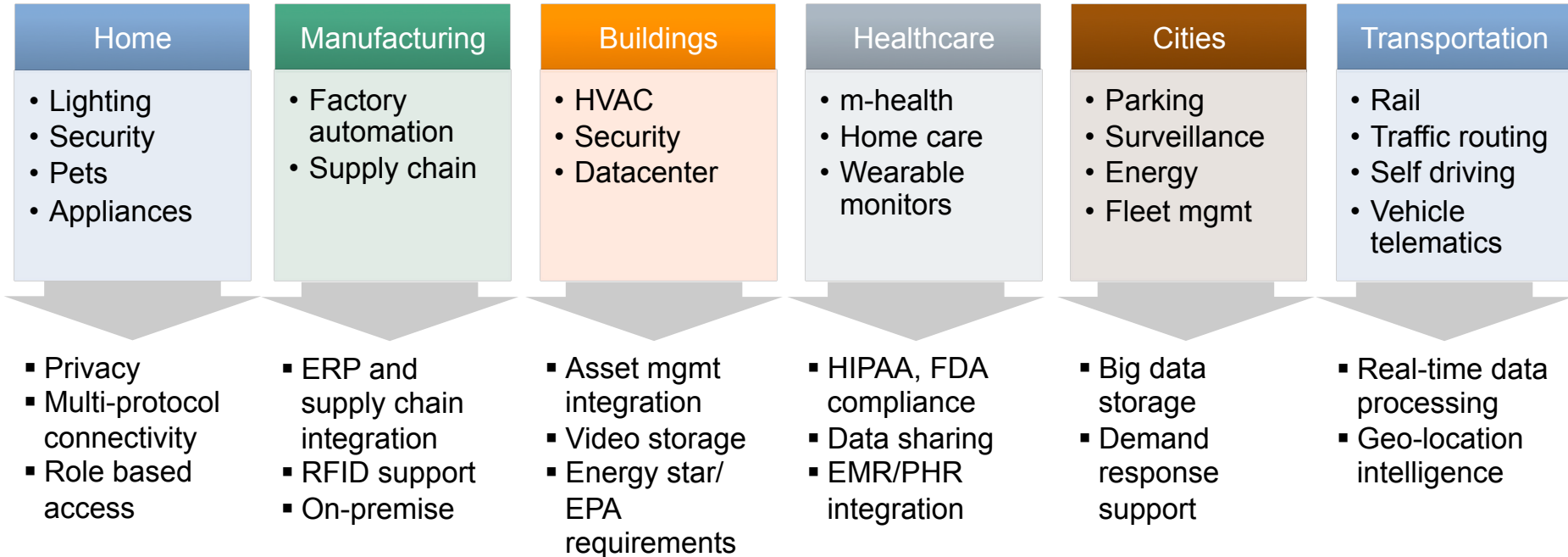
Expectation of
IoT app
development

Reality of IoT app
development
requirements



- Device Connectivity
- Cross-platform Apps
- User Interface
- Secure Pairing/Un-Paring
- Operational Data Security
- Bandwidth Optimization
- Roles, Access Control
- Offline Caching
- User Authentication
- Server Business Logic
- Data Sharing
- Data Transformation
- Data Integration
- API Versioning
- Maintenance
- Scalability
- Deployment
- Upgrades

Industry IoT App Requirements



IoT Security

A much longer chain to protect

Devices

- Limited resources
- No perimeter

Connectivity

- Rugged pathways
- Legacy to IP hand-offs

Data

- Processing and analytics
- Partners
 - Access and Integration

Users

- Identity and access

Next Steps

- Download datasheet on IoT app platform best practices: <http://bit.ly/1L1EXaw>
- Stay in touch and let me know how we can help with your IoT questions: rmendis@anypresence.com
- Get our upcoming IoT Whitepaper. Sign up at <http://www.anypresence.com/contact/> and mention “IoT whitepaper” in comments
- Follow us for IoT news @AnyPresence
- Follow 451 Research @451Research

“We tend to overestimate the effect of a technology in the short run and underestimate the effect in the long run.”

- Amara's Law



Thank you!



NEW YORK
LONDON
BOSTON
WASHINGTON, D.C.
SAN FRANCISCO