

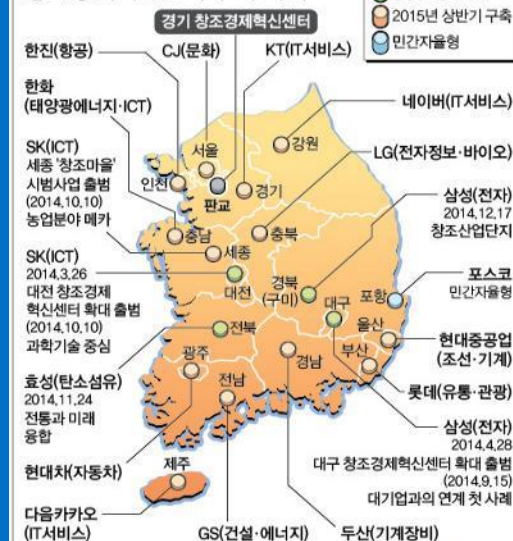
An aerial photograph of the Manhattan Bridge, featuring its iconic blue towers and suspension cables. A network of white lines and nodes is overlaid on the image, connecting various icons: a cube with arrows, a cloud, a globe, a cube, and a traffic light. On the right side, a large blue circle contains a central white cloud with the Intel logo and text, surrounded by icons for a robotic arm, a person with a magnifying glass, a smartphone, a car, a train, a traffic light, a camera, and a factory.

Intel® IoT Platform For Smart Home/ Factory

인텔 코리아 박종섭 이사
Version: 2015.04.17.001



창조경제혁신센터 구축 계획



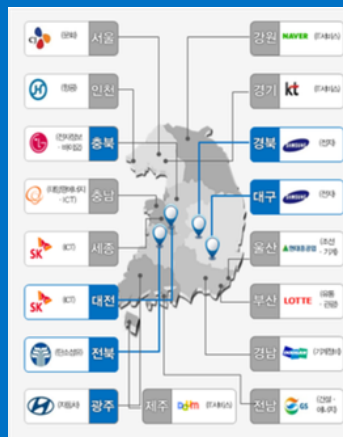
자료/미래창조과학부

김토일 기자 / 20150330

트위터 @yonhap_graphics

페이스북 tune.y.kr/LeYN1

YONHAPNEWS



(14.10월) • 총 500억원 규모 펀드 조성

전북 (14.11월)
• 10개 탄소소재 하든 캠퍼연 선정
• 파이낸스 존 설치, 300억 규모 펀드 조성

경북 (14.12월)
• 스마트 공장 원스톱 서비스 제공
• 7대 상생협력 프로젝트 추진
"IT와 융합" 1. 로봇 탄소소재 2. 고성능 스마트 센서 3. 초정밀 가공 4. 친환경 소재

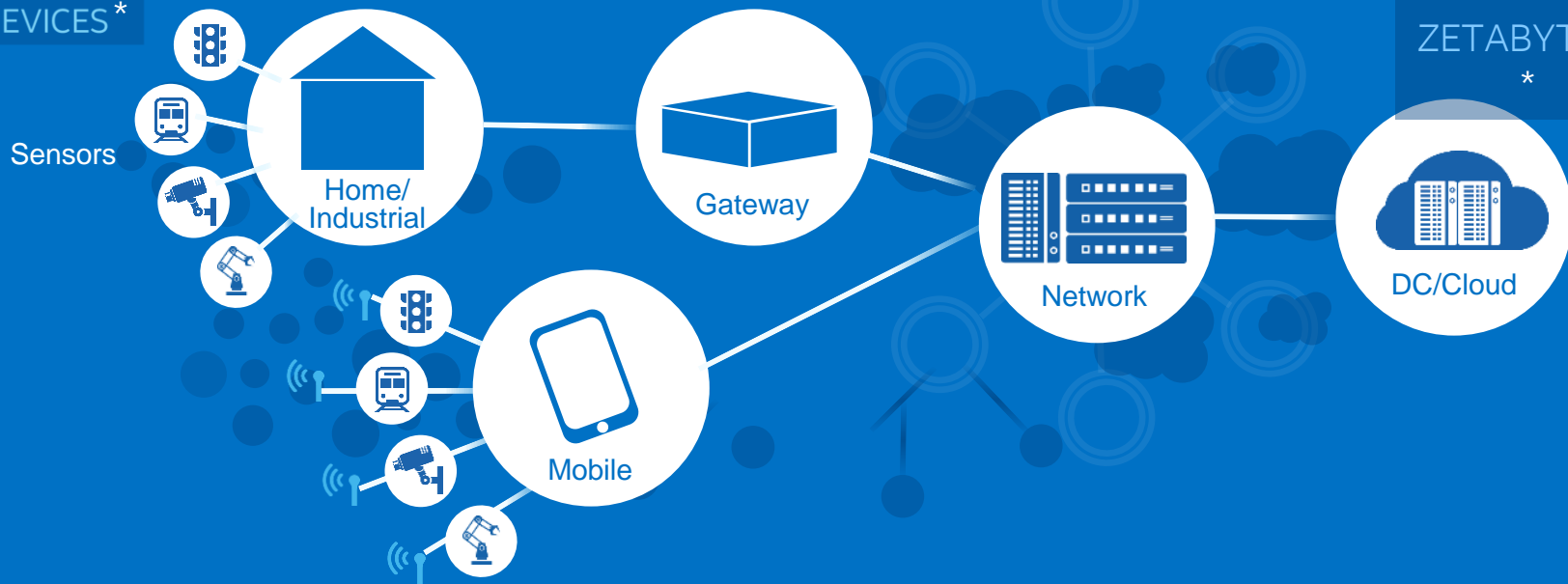
광주 (1월)
• 자동차 산업 창업 및 수소연료전지차 지원
• 전통시장 육성, 시민 창조경제 기금(100억원)

충북 (2월)
• K-바이오허브와제로 에너지 하우스 사업사업
• 특허지원청구 구축



The Internet of Things is Everywhere

50B
DEVICES*



44
ZETABYTES*
*

COST OF
SENSOR
PAST 10 YEARS **2X**
↓

COST OF
BANDWIDTH
PAST 10 YEARS **40X**
↓

COST OF
PROCESSING
PAST 10 YEARS **60X**
↓

* IDC

** IMC/EDC: The Digital Universe of Opportunities

*** Goldman Sachs

Essential Tenets of Edge to Cloud IoT Solutions



Services: Infrastructure to Monetize HW, SW, and Data Management from Edge to Cloud

– Managing Systems and Monetizing the Value Data Provides Customers



Customer Value Visualized by Broad Analytics Infrastructure from Edge to Cloud

– Real-Time, Insightful, and Secure Analytics



Seamless Data Ingestion, Compute Processing, and Control from Edge to Cloud

– Broad Protocol Normalization Support, Real-Time Data Streaming, Closed-Loop Control Systems, OTA Device Management



Edge Devices and Gateways Securely Discovered by Cloud in Seconds

– Broad OS and Comms Support, HW-level Identity, World-Class APIs + API Management



Edge Devices and Gateways Setup from Box to Cloud in Minutes

– Enabled by Interoperable “Building Block” Architecture with Robust yet Efficient Middleware Agents



Security as the Foundation with Embedded HW and SW-Level Protection

– Secure Boot, Identity Protection, Whitelisting, & Encryption from Edge to Cloud

Challenges Slowing IoT Growth

Security, Privacy, and Compliance

Fragmentation of Vertical Markets

IT/OT and Legacy Infrastructure Integration

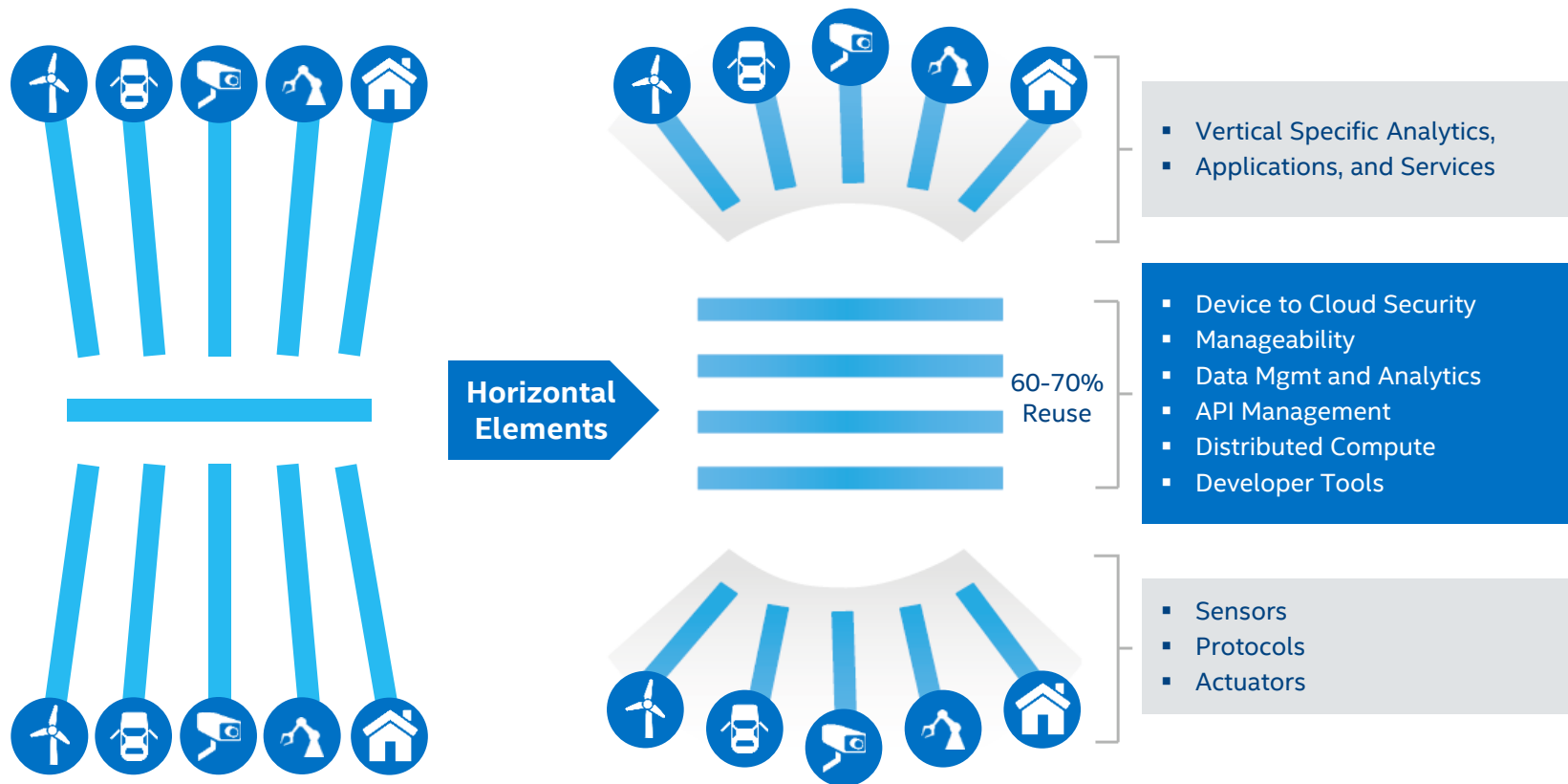
Connectivity

Underutilized Data

Interoperability and Standards



A Horizontal Platform Helps IoT to Scale Out



Intel® IoT Platform (Atlantic Ridge)

Value Proposition

Security: Intel ensures a chain of trust is rooted in silicon and linked throughout the software.

Manageability: Intel enables discovery, provisioning and management from edge to cloud.

Connectivity: Intel supports signal, control, data, and application flexibility on open standards-based networks.

Performance: Intel provides standard hardware platforms optimized for workload, performance, and cost.

Interoperability: Intel enables applications and services to scale across diverse platforms using secure APIs.

Analytics: Intel develops algorithms, architectures, and tools for predictive analytics.



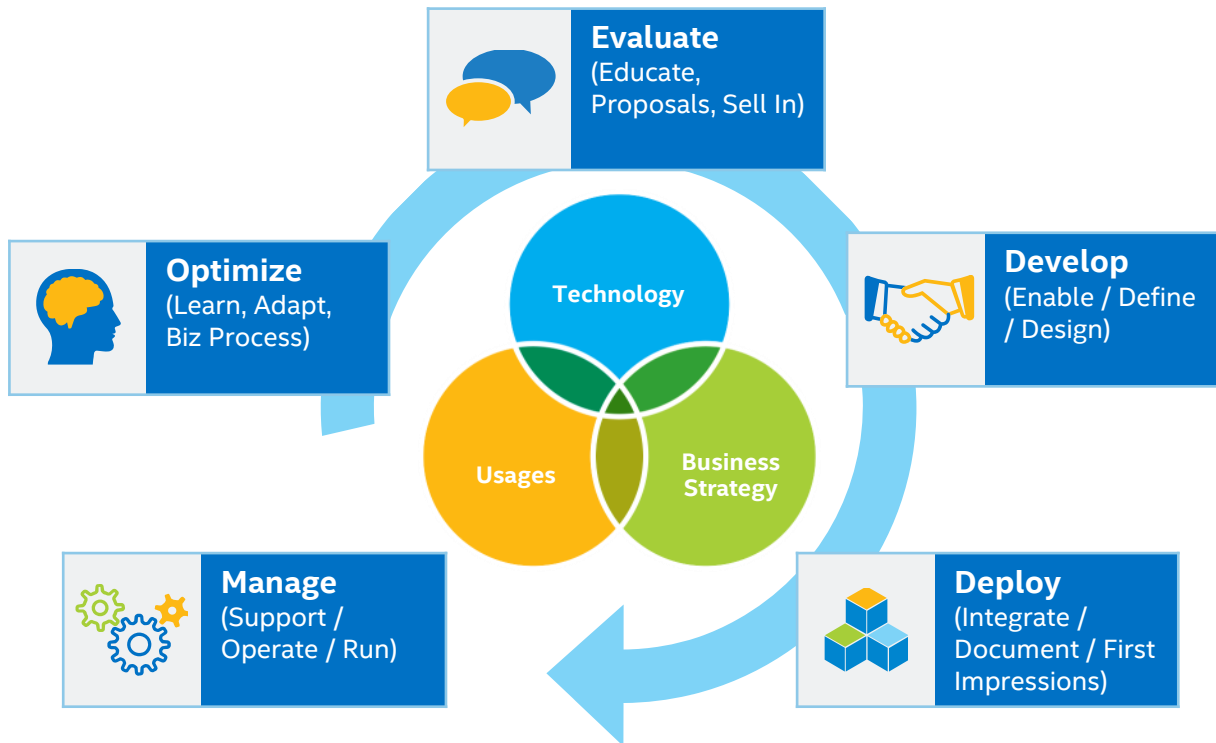
Reusable Building Blocks for Faster TTM

Actionable Intelligence from the Edge to the Cloud

Secure, Open and Scalable Compute



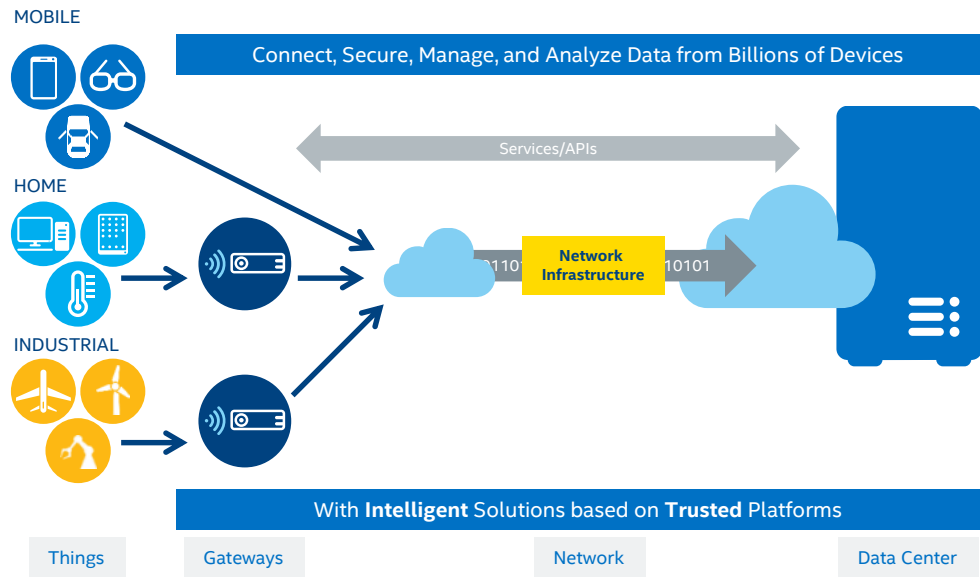
Improving the IoT Customer Journey



Planning Intel® IOT Platform products with continuous learning and improvements

Intel® IoT Platform is About...

- **Re-usable, pre-configured, pre-validated building blocks** that the ecosystem can use to design and deploy IoT solutions across different vertical markets
- **Seamless and secure** connected devices; delivering trusted data to the cloud, and delivering value through analytics and enabling new services
- **Interoperable hardware, software and services portfolio** spanning from the edge to the cloud
- **Standardized hardware platforms** that are optimized for workload, performance, and cost



IoT Platform Capabilities

IoT solutions bring increased intelligence and value over time

"Things" easily connect, communicate and work together

Connect



"Things" and networks are monitored, secure and managed

Secure & Manage



Analyze, expose, and manage data to provide business insights

Analyze & Expose



Predict how the devices or processes perform and take actions

Predict



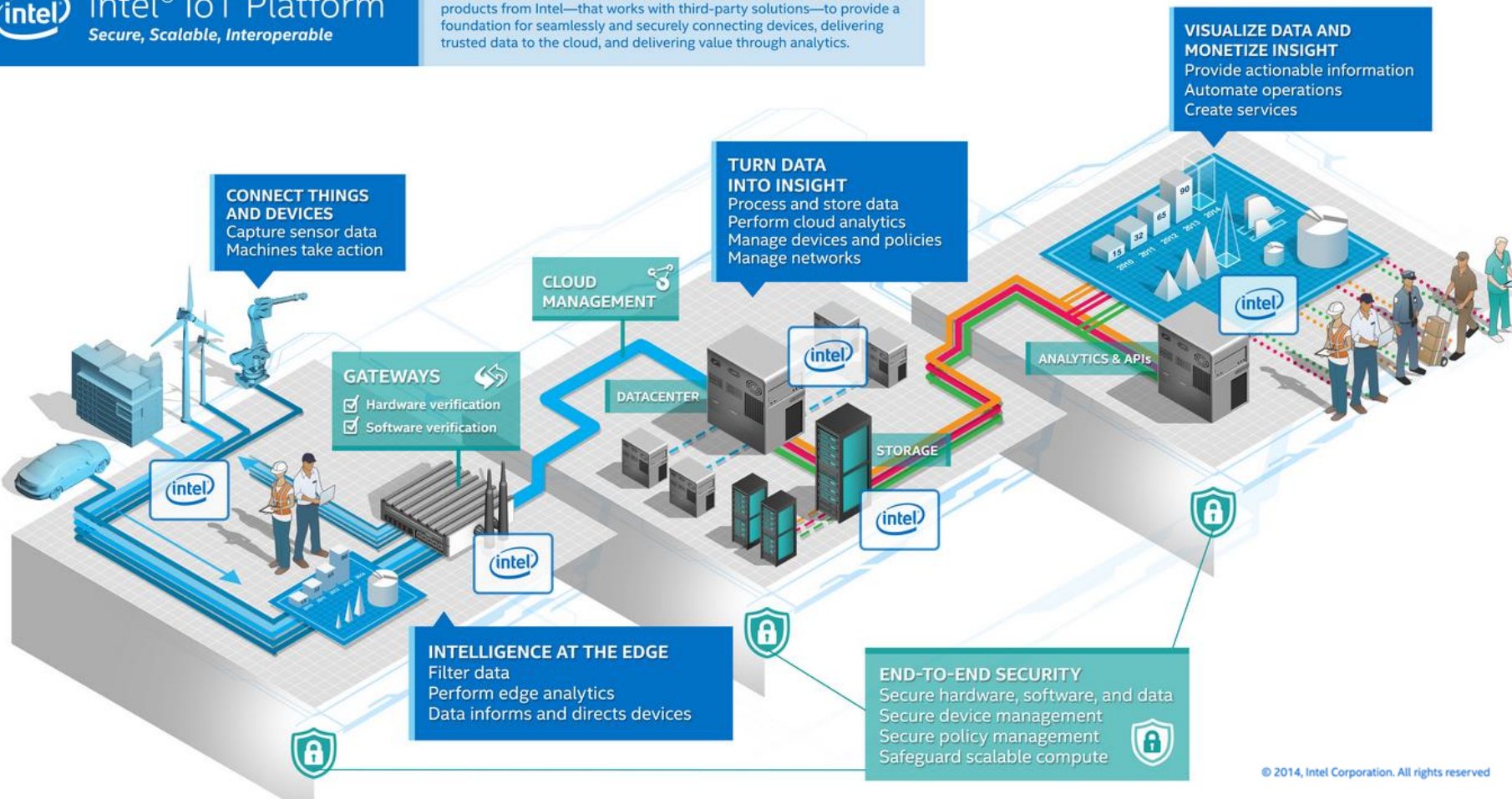
Innovate, optimize end to end systems, autonomous behavior

Optimize



Product Experience - Consistency - Interoperability

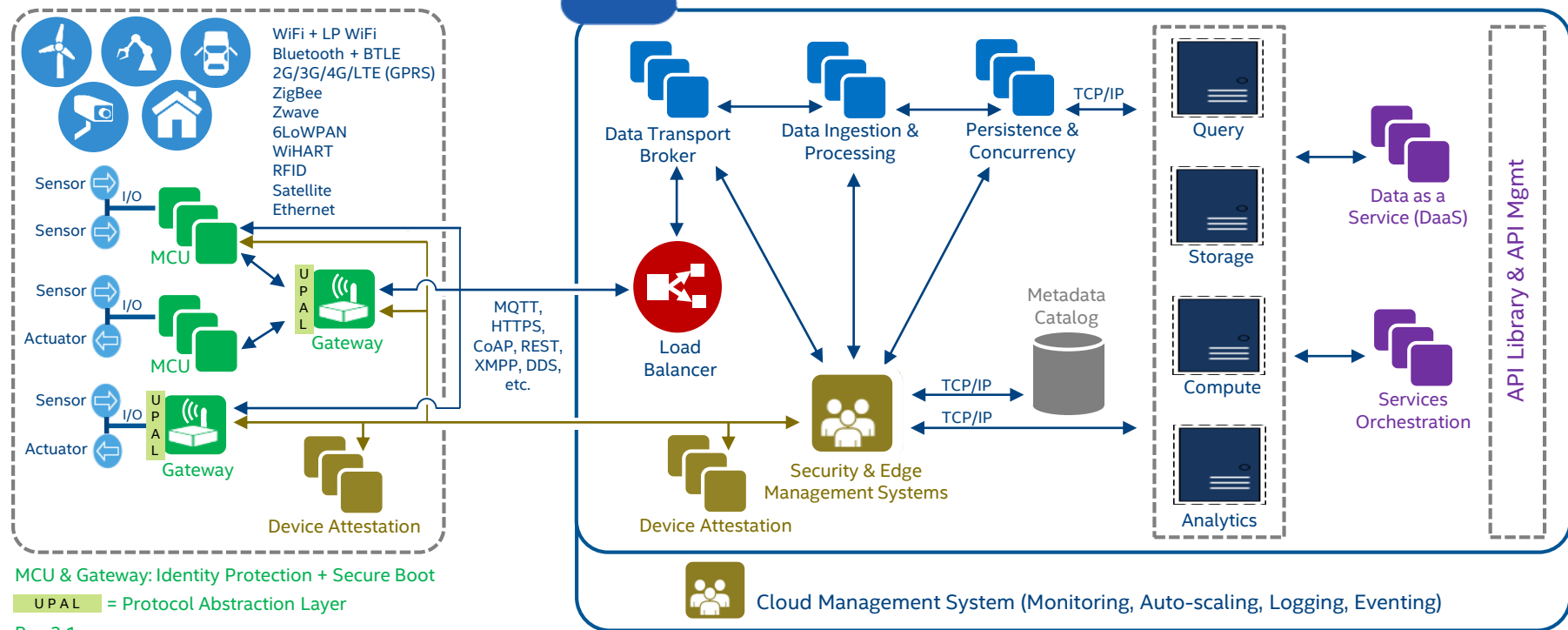
The Intel® IoT Platform is an end-to-end reference model and family of products from Intel—that works with third-party solutions—to provide a foundation for seamlessly and securely connecting devices, delivering trusted data to the cloud, and delivering value through analytics.



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Logical Definition of Intel® IoT Platform – Rev2.1

Intel Confidential – Do Not Forward



The Intel® IoT Platform is an end-to-end reference model and family of products from Intel—that works with third-party solutions—to provide a foundation for seamlessly and securely connecting devices, delivering trusted data to the cloud, and delivering value through analytics.

Intel® IoT Platform Roadmap

Version: 2015.02.3.001

Legend		— —	In Planning
	Integrated Offerings		Enhanced Security
	New Product / Capability		Deeper Product Integration

Edge
Network, Cloud/Data Center

1H 2015	
Expose	Intel® Mashery™ API Management
Analyze	Intel Cloud Analytics Service for IoT Dev Kit
	Cloudera* CDH (Hadoop*)
Secure	McAfee – Security Management
	ePO (v5.3) Enterprise Security Manager (SIEM) Global Threat Intelligence (GTI) Enhanced Gateway Security **
	Next Gen Firewall (NGFW) Data Center Security Integrity Control
Manage	Wind River* Edge Management System (v1.2)
	Remote Updates, Wind River IoT API
Compute (i.e. Gateway)	Intel® IoT Gateway (v2.1)
	Agents: Wind River EMS Software: Wind River Linux, Wind River IDP Security: McAfee Embedded Control (MEC) Processors: Intel® Quark™ and Intel® Atom™ Processors
Dev Kits	DK 50 (Developers) DK 100 (Ind & Energy) DK 200 (Transport) DK 300 (Multi Vertical) SK50/100 (SW stack only)

Intel® IoT Platform Highlights

- Wind River* Edge Management System - EMSv1 shipping
- Integration of the Intel® IOT Gateway v2.1 and Wind River EMS v1.0
- Multiple Dev Kit Options Available

Note: Future versions include all the features of prior versions, new features highlighted

** Early Access available to select partners and/or customers

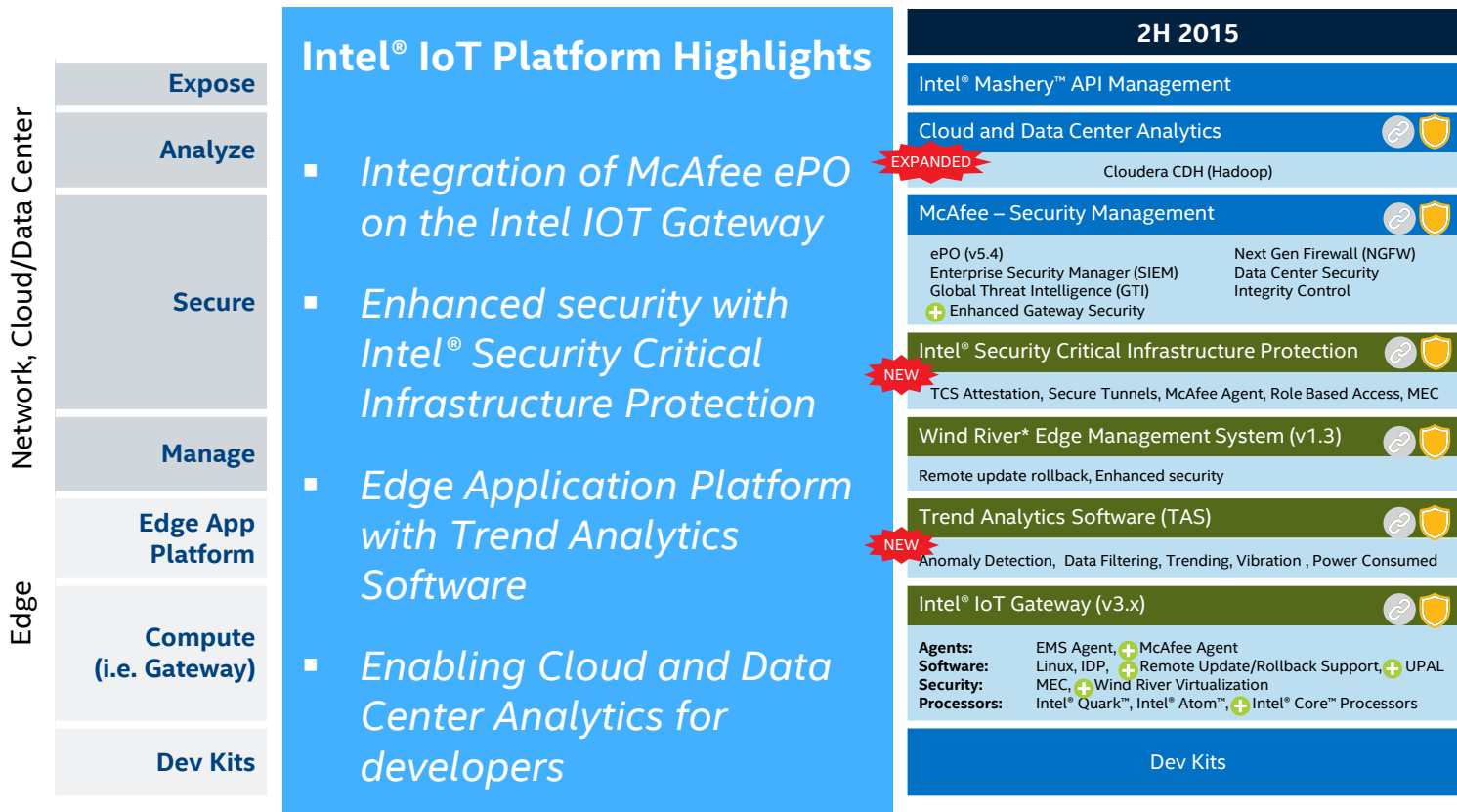
*Other names and brands may be claimed as the property of others.

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Version: 2015.02.3.001

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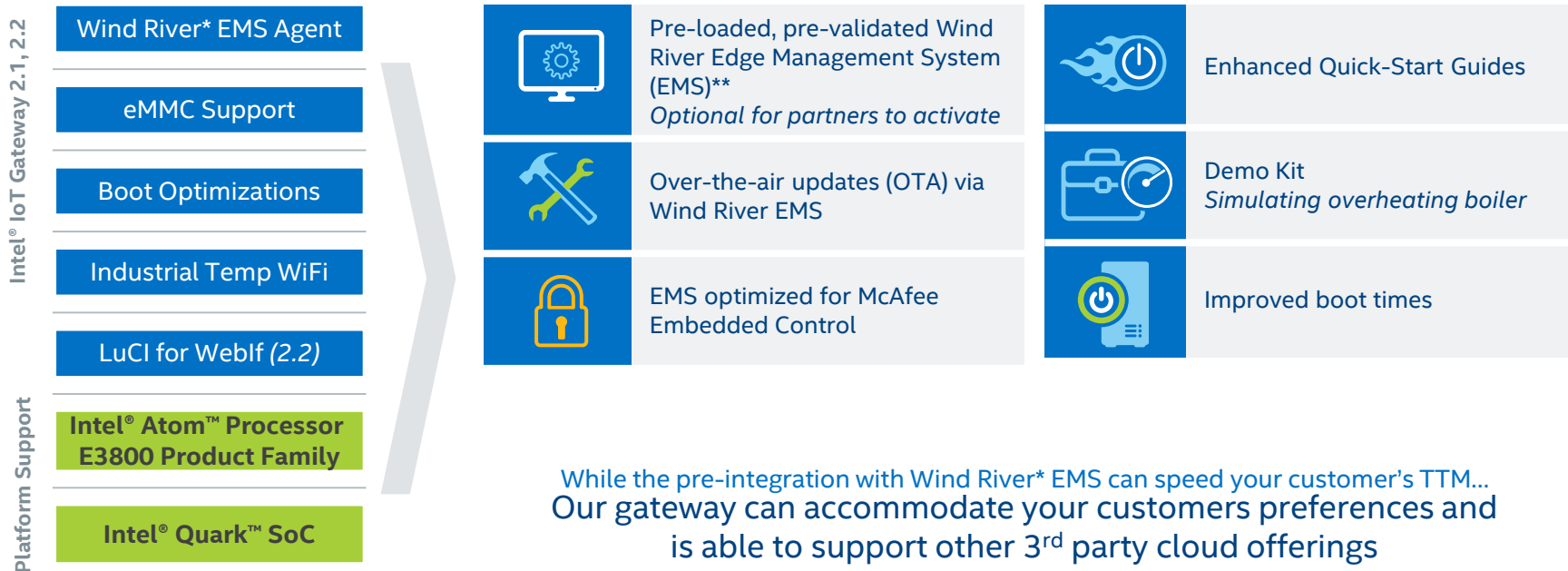
*Other names and brands may be claimed as the property of others.



IOTG

Intel® IoT Gateway 2.1 Release

Intelligent connectivity to bring valuable data off legacy equipment



**It's important to note that while Wind River* EMS is pre-loaded to provide faster time to market, customers may choose an edge management solution of their choosing. All products, dates, and figures specified are preliminary based on current expectations, and are subject to change without notice.

*Other names and brands may be claimed as the property of others.

Analytics: The Road to New Revenue



Use Cases

- Electrical energy consumption analysis
- Vibrational analytics to predict machine failure

Current Customers



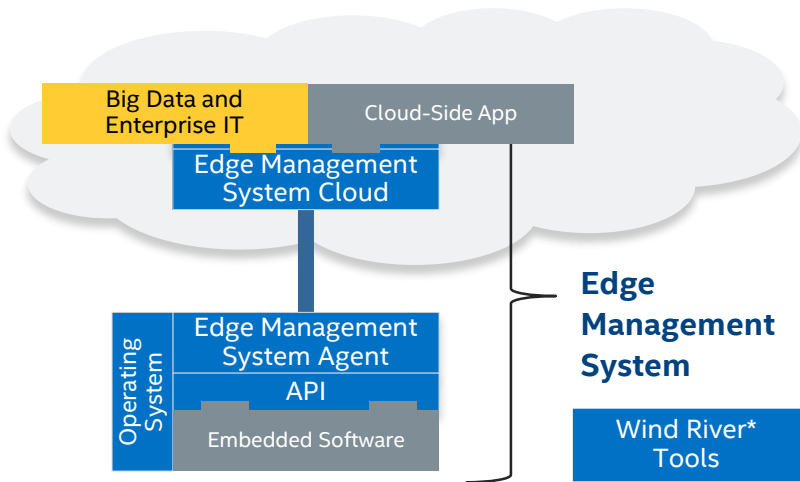
Compatibility

- Enhances accuracy of Business Intelligence Applications (i.e. SAP, Oracle & IBM) – with more accurate input data
- TAS is not Business Intelligence Analytics, it is providing analytics about the device conditions (probability of failure, energy consumption, etc.)

Actionable business intelligence to open new revenue streams
Changing the conversation from BOM to value

Wind River* Edge Management System

Centralized console for securing and managing edge devices and data








Highlights

- Telemetry and data services
- Device management
- Security
- Device-side API and Cloud-side API development tools
- Accelerating sales with Sample Code, Professional services

- Intel has entered the IOT Edge Management category and we are leading with this solution to customers
- EMS is sold as a standalone offering through Wind River*
- The Intel® IoT Gateway includes the EMS agent, or can be bypassed during configuration if a customer desires an alternate 3rd party cloud service

McAfee Security Management

ePolicy Orchestrator® (McAfee® ePO™) Software

				
Single Point of Reference	Scalable Management Architecture	On-Premises or in the Cloud	Advanced Dashboards and Reporting Tools	Lightning-Fast Management
Manage hundreds of thousands of nodes from a single console	Leverage security products of >100 McAfee Security Innovation Alliance partners	Elastic, scalable, always up-to-date	Highly customizable and automated	Instant security queries and actions
41% less time deploying, monitoring, and reporting security policies		45% less time developing security reports for analysis		31% less time responding to security incidents

Source: MSI Survey: Completed October 2014 with 1287 users of security management platforms including 450 users of ePO, global with respondents across US, WE, APAC, and LATAM.









Software and workloads used in performance tests may have been optimized for performance only on Intel microprocessors. Performance tests, such as SYSmark and MobileMark, are measured using specific computer systems, components, software, operations and functions. Any change to any of those factors may cause the results to vary. You should consult other information and performance tests to assist you in fully evaluating your contemplated purchases, including the performance of that product when combined with other products.



*Other names and brands may be claimed as the property of others



IOTG

Cloud Based IoT Ecosystem

AVAILABLE TODAY			
			
Amazon Kinesis*	IBM Blue Mix*	Eurotech Everyware Cloud*	Oracle Java*
Connection recipe ¹ for Intel® IoT Gateway and Amazon Kinesis 	Connection recipe ² for Intel IoT Gateway and IBM Blue Mix 	Intel IoT Gateways ⁴ with Eurotech Everyware Cloud 	Connection recipe ⁵ for Intel IoT Gateway and Oracle Java 

IN DISCUSSION	
	Additional IoT Ecosystem Development
GE Predix*	AT&T* Cisco* SAP* Microsoft* Verizon* Others
Integration of Intel components ³ into GE Predix 	Future connection recipes and integrated components

1 - <https://www-ssl.intel.com/content/www/us/en/embedded/products/gateway-solutions/scaling-iot-data-movement-amazon-kinesis-paper.html>

2 - <https://developer.ibm.com/iot/recipes/intel-gateway/>

3 - <https://www.genewssroom.com/press-releases/intel-cisco-developing-%E2%80%9Cpredix-ready%E2%80%9D-devices-industrial-internet-278746>

4 - <http://www.eurotech.com/en/press+room/news/2671>





5 - <https://www-ssl.intel.com/content/www/us/en/embedded/products/gateway-solutions/running-oracle-java-gs-iot-brief.html>








— — In Planning

Intel® IoT Platform Vertical Use Cases

Version: 2015.02.3.001

Legend

	Specialized		Enhanced Security
	Optimized		In Planning

		Smart Building (Energy Mgmt Use Case)	Smart Retail (Vending Use Case)	Smart Transport (Fleet Mgmt Use Case)	Smart City (Air Quality Use Case)
Network, Cloud/Data Center	Ecosystem	Third Party Applications	Third Party Applications		City Air Quality Applications
	Expose	Intel® Mashery™ API Management Cisco* EnergyWise* Management Software	Intel® Mashery™ API Management	Fleet Management Specific Analytics and Applications	Intel® Mashery™ API Management
	Analyze	Cloud and Data Center Analytics 	Cloud and Data Center Analytics 	Fleet Management Cloud and Data Center Analytics	Cloud and Data Center Analytics 
	Manage	Wind River* Edge Management System	Wind River Edge Management System	Vending APIs	Wind River Edge Management System
Edge	Edge App Platform	Intel® Decision Solutions: Trend Analytics SW 1.5			
	Gateway with Security	Intel IoT Gateway 	Intel IoT Gateway 	Intel IoT Gateway 	Intel IoT Gateway 
	Sensor Kit	Eurotech* Energy Sensor	Vending Control Board (Sunset Pass)	Fleet Management Sensors on vehicle	Air Quality Sensors Environmental Enclosure

Intel IoT Case Studies: Results

Smart Retail



NCR POS w/ Intel® DPT and vPro for Transactions:
Reducing fraud through e2e encryption.

Potential US Benefits:
100M credit card numbers stolen in 2013

Smart Industry



Intel's Assembly / Test – sensors and analytics help maintain productivity.

Measured Benefits:
\$9M/ year

Smart Transportation



Vnomics solution: 6% increase in fuel economy across 100% of fleet = \$15M / Year

Potential US Benefits:
38 Million Tons of CO₂

Smart Buildings



Di-BOSS (Digital Building Operating System) + Cisco Energy Management: Electrical, Steam and Water

Saved \$1M in 1 Building / Year
\$.50/sq ft.

Smart Transportation: Fleet Management

Problem

Rising fuel costs, environmental concerns, driver safety, and unpredictable maintenance problems

How It Works



Vehicle sensor data is collected



Increased Fuel Efficiency



Reduced Maintenance Costs



Improved Driver Safety

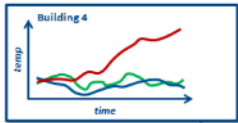
https://videoportal.intel.com/media/Vnomics+IoT+Fleet+Management+Testimonial/0_x24x1e77

Smart Building - HVAC

Problem

Equipment and building control are not integrated.
HVAC units require a technicians maintain and adjust
the unit for optimal performance.

How It Works



Reduced
Energy
Costs



End-to-End
Security



Connecting
New and
Legacy Units



New Business
Model enabled

<http://www.intel.com/content/www/us/en/internet-of-things/customer-stories/daikin-applied-transforms-hvac-systems.html>

Smart Healthcare: Parkinson's Disease

Problem

Significant challenges in monitoring symptoms, the progression of the disease, and the effectiveness of drug therapies.

How It Works



Michael J. Fox Foundation

300 observations per second from each patient

Anonymous patient data is aggregated and analyzed

Machine learning and graph analytics to deliver more accurate predictive models

https://videoportal.intel.com/media/The+Michael+J.+Fox+Foundation+and+Intel+join+forces+to+improve+Parkinson%27s+Disease+%28YouTube%29/0_7ad5hbdw

Case Study: Smart Home

The Smart Home is one of the primary intelligent environments through which IOT will reshape daily life.

May be how consumers first experience the IoT in full view.



Requires:

- Energy management requires cooperation with utilities.
- Wellness monitoring requires assured connectivity.
- Entertainment requires control of multiple systems.
- Clarity of privacy, security and data ownership.
- Ease of use/Interoperability

Intel® IoT Platform Value: Accelerate the Deployment of Secure, Scalable, Interoperable IoT Solutions

Analyze: Catalyze the ecosystem to accelerate innovation in analytics for IoT

Manage: Enable enterprises to manage devices, networks, and systems with agility

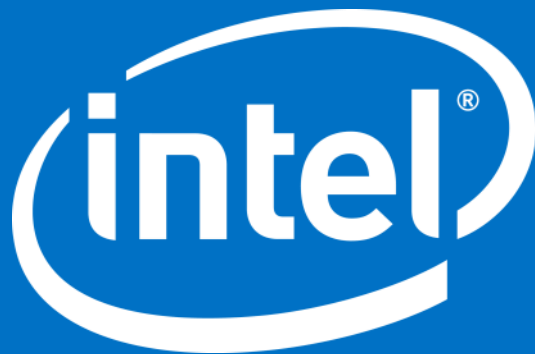
Connect: Link legacy systems as well as new devices to the Internet of Things

Secure: Protect data with services, software, and hardware-assisted security mechanisms



Helpful Links

- Intel IoT Platform Landing Page: <http://www.intel.com/content/www/us/en/internet-of-things/iot-platform.html>
- Intel IoT Platform Chalk Talk: <http://www.intel.com/content/www/us/en/internet-of-things/videos/iot-platform-chalk-talk-video.html>
- Intel IoT Platform Infographic: <http://www.intel.com/content/www/us/en/internet-of-things/infographics/iot-platform-infographic.html>
- Intel IoT Platform Animation: <https://www-ssl.intel.com/content/www/us/en/internet-of-things/videos/iot-platform-animation-video.html>
- Intel IoT Platform Solutions Brief: <https://www-ssl.intel.com/content/www/us/en/internet-of-things/iot-platform-solution-brief.html>
- Solution Blueprints: <http://www.intel.com/content/www/us/en/internet-of-things/solution-blueprints-and-case-studies.html>



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