Translate Data into Action with IoT solutions

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A true partnership where collaborative people, empowering technology and transformative ideas accelerate change.

Accelerating innovation
Accelerating transformation
Accelerating value

Accelerating possibilities
Our vision

Be the industry’s leading provider of hybrid IT, built on the secure, next-generation, software-defined infrastructure that will run customers’ data centers today, bridge to multi-cloud environments tomorrow, and power the emerging intelligent edge that will run campus, branch and Industrial IoT applications for decades to come. All delivered through a world class services capability.
Our strategy

We make **Hybrid IT** simple

- Traditional Data Center
- Private Cloud
- Managed Cloud Services
- Public Cloud

Traditional Data Center  |  Software-defined Infrastructure and Private Cloud  |  Multi-cloud Partnerships

We power the **Intelligent Edge**

- Campus & Branch
- Industrial Internet of Things

We have the **expertise to make it happen**

- Advisory & Professional Services
- Technical Services
- IT Consumption Models
Realizing our Vision

HPE Vision
Be the industry’s leading provider of hybrid IT, built on the secure, next-generation, software-defined infrastructure that will run customers’ data centers today, bridge them to multi-cloud environments tomorrow, and enable the emerging intelligent edge that will power campus, branch and IoT applications for decades to come.

<table>
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<tr>
<th>Strategic Partnerships</th>
<th>Targeted Acquisitions</th>
<th>Focused Investments</th>
<th>Portfolio Optimization</th>
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<tbody>
<tr>
<td>• SAP</td>
<td>• Aruba Networks - $2.7B</td>
<td>• HPE Synergy</td>
<td>• TippingPoint sale - $300M</td>
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<tr>
<td>• Microsoft Azure</td>
<td>• SGI* - $275M</td>
<td>• SAP HANA Infrastructure</td>
<td>• H3C deal in China - $2.6B</td>
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<td>• Intel</td>
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<td>• Edgeline</td>
<td>• Spin-merge of Enterprise Services business with CSC* - $8.5B</td>
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<td>• Docker</td>
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<td>• OneView</td>
<td>• Spin-merge of non-core software assets with Micro Focus* - $8.8B</td>
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<td>• Mesosphere</td>
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<td>• Helion Cloud Platform</td>
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*Pending
Secure hybrid IT and campus mobility solutions for the Internet of Things

Software-defined and services as key enablers
- Technology Services helps customers transform their IT environment and take advantage of opportunities in emerging areas
- Software-defined capabilities power and differentiate infrastructure solutions and are critical in a cloud environment
From Buzzword to Real
What is the Internet of Things
It’s about translating data into action

Assembling the right services and technologies

New customer behaviors
New buying methods
New consumption models

New revenue streams
New approaches to IT operations
New demands and uses for insight
New threats & risks

New types of applications

Business Outcome

It’s about business outcomes

Incredible things happen when you connect the unconnected

- Reduce costs, risk reduction and improve operation efficiency
- Improve customer experience
- Improve existing revenue streams
- New revenue streams / market opportunities
What is the “Edge” or a “Thing”? The IoT “Edge” is where the action is…where the “things” are

Manufacturing floor
Product test facility
Wind farm
Energy power plant
Ships, boats, submarines
Crop fields
Sports arena
Electrical power grid
Planes, trains, and automobiles
Medical facility
Residences
People, animals, nature

The things embody new insights . . .

The 3 Types of Insight from the IoT

Business
Engineering
Scientific

New, optimized converged systems at the Edge, derive value from these new insights

OT = Operations Technology
Standards are Key
Edge, Connectivity and Analytics
Encapsulated eco systems: Vertical vs. Horizontal information view with many connectivity possibilities

Smart Factory

Smart Mobility

Smart Healthcare

Smart Cities

Smart Logistics

Vertical Information Flow

Vertical Information Flow

Vertical Information Flow

Vertical Information Flow

Vertical Information Flow

OPC UA

Modbus

PROFINET

MTConnect

MQTT

BACnet

Woopsai

3G/4G

Wi-Fi

LoRa

ZigBee

SIGFOX

Z-Wave

Bluetooth SMART

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Intel
HPE's open Universal IoT platform is horizontal oriented and covers out of the box cross domain capabilities.
IoT platform architecture

Standardized architecture streamlines onboarding new applications and manages information in a **unified, secure, and flexible** end-to-end system.

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<th>Enterprise Specific Applications/Use Cases</th>
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<td>Data Service Cloud</td>
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<td>Device &amp; Service Management</td>
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<tr>
<td>Data Analytics</td>
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<tr>
<td>Data Acquisition &amp; Verification</td>
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<tr>
<td>Back-end Systems</td>
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<tr>
<td>Network Interworking Proxy</td>
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<tr>
<td>Private network (RF, WiFi…)</td>
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<tr>
<td>CSP network (fixed / mobile)</td>
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<tr>
<td>IoT Gateways</td>
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<tr>
<td>IoT Devices and Connected Objects</td>
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</table>
HPE Universal IoT Platform
HPE combines telco with automotive knowledge to accelerate customer centric connected platforms and ensure sustainable growth

- Carrier Grad Class: High available and reliable services based on Telco sector proven technologies
- Flexible Pricing Model: Pricing model supports various business scenarios, from ramp-up to mass market
- Full Lifecycle Support: Worldwide Consulting and integration capabilities and cloud service / deployment methods
- Cross Industry Capabilities: Horizontal focused IoT platform to effectively support heterogeneous business requirements
- IoT Standard & Global Coverage: Ensure interoperability based on the global oneM2M standard + global service coverage
IoT collaboration with SAP
Joint engineering activities
Co-Innovation Labs from HPE and SAP

Digital Enterprise Platform
Design and certification of SAP HANA on-premise and cloud platforms for the Digital Enterprise

SAP HANA and IoT
Standardized architecture in a unified, secure, and flexible end-to-end system

Security
Fortify for SAP HANA

Future technologies
SAP HANA on „The Machine“
IoT Innovation Labs
Enabling total access to HPE IoT technology

Partner and customer engagement, interaction, assessment and collaboration on solution development and applications

- Building, testing and pre-validation of Edgeline systems and end-to-end HPE IoT solutions
- Integrated real-life “Edge Experience Zones” to interact with and highlight industry applications
- On-site access or secure remote access
- Datacenter connectivity and testing

hpe.com/info/iotinnovationlabs.com
SAP - HPE IoT Platform
Combine infrastructure and Big Data standards from market leader

Enterprise Specific Applications/Use Cases

Data Service Cloud

Device & Service Management

Data Analytics

Data Acquisition & Verification

Back-end Systems

Network Interworking Proxy

Private network (RF, WiFi…)

CSP network (fixed / mobile)

IoT Gateways

IoT Devices and Connected Objects
SAP-HPE IoT Architecture

- **Device Management**
  - AINT, Edge, Device Operational Control

- **Analytics**
  - BI, Dashboards

- **Backend**
  - ERP, ME/MII, WM, SCM, LE-TOLA, MM, QM

- **Infrastructure**
  - On Premise / Out of the Cloud

- **As a Service / pay per use**

- **Secure High Availability Operation**

- **Mobility**
  - Fiori

- **Hewlett Packard Enterprise**
  - Component

- **Intel**
  - Component

- **Key Figures**
  - > 50 Mio. devices managed
  - > 4,000+ WW solution experts
  - > 500 HPE OSS customer deployments worldwide

  - 15000+ HANA customers
  - Market Leader in Real Time Analytics

  - 310,000 SAP business costumers ww
  - 70,000+ ERP customers

  - Complete Portfolio
  - HPE #1 or #2 in almost all infrastructure categories
Introducing the Edgeline EL1000 and EL4000
Intel based products engineered specifically for the IoT

Data flow

“Things” generate data

Operations technology

New product category:
“Converged IoT Systems”
Integrate data acquisition, real-time analytics and control

Stage 1

Stage 2-3

Stage 4

Control flow

The Edge

Edge IT, data center and cloud

Deep analytics and compute

Shift Left from the data center to the edge

Data is sensed

Performance Gateway Edgeline EL20

Performance Converged IoT System Edgeline EL4000

Entry Gateway Edgeline EL10

Entry Converged IoT System Edgeline EL1000

Existing product category “IoT Gateways”

• Proven deep x86 compute
• Enterprise-class systems/device management
• Datacenter-class analytics
• Converged with embedded data capture/control

Shift Left from the data center to the edge

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Intel
HPE IoT Backend Solutions for SAP HANA
Workload-optimized systems designed for speed, flexibility, and unmatched scalability

**FAST**
reduce time to insight and action

**EFFICIENT**
refocus investments on innovation

**SIMPLE**
easily stand up and manage new services

#1 **Market Share Leader** in every product category (2/4/8/16 sockets)

Built on the next generation **Intel® Xeon® E7 v4 (Broadwell)** Processor

Mission-critical **high availability and data protection**
Translate Data into Action with IoT solutions

Customer Scenarios
## Translate Data into Action with IoT solutions
### Customer Scenarios

<table>
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<tr>
<th>Industry</th>
<th>Solution Description</th>
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<tbody>
<tr>
<td>Energy</td>
<td>Windpark Management</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>Predictive Maintenance</td>
</tr>
<tr>
<td>Connected Cars</td>
<td>Vehicle sensors, vehicle control, and communications</td>
</tr>
<tr>
<td>Smart Cities</td>
<td>Transform municipalities</td>
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</tbody>
</table>
IoT in Manufacturing Industry
Kaeser Kompressoren
Reduced maintenance costs and spare parts inventories, improve customer satisfaction

Requirements
Kaeser Compressors, a leading innovator in compressed air systems technology, needed real-time data feeds from globally distributed customer equipment to identify potential failures before they happened.

“Our solution with SAP HANA is expectable to result in $10 million annual savings and a 60 percent reduction in down time.”

Falko Lameter, CIO, Kaeser Kompressoren
IoT Predictive Maintenance
Business Value for Kaeser Kompressoren

• App. 10M$ Cost Saving / Year

• Unique offering: “Compressor as a Service”
IoT in Energy Industry
Energy
Heterogeneous Windpark Management with HPE IoT platform architecture

HPE Windpark Manager

Technical Information

Operational Analysis

Business Value
Connected Cars
IAV - Hyper-connected vehicles
Accelerating the automotive industry through digital transformation

Requirements

Need the ability to offer new and disruptive services to automobile manufacturers to enable car sharing, usage-based insurance, and assisted driving. Also need an IoT platform capable for real time connectivity, device management and analytics - not more apps.

Global Automotive OEMs are seeking to transform into new digital business. In order to enable this, a real time IoT platform with analytics capabilities is required.

Examples include: geo-fencing, road and weather conditions, infrastructure integration; vehicle-to-cloud, vehicle-to-vehicle real time analytics
Car Connected Services
Solution concept: Vehicle sensors, vehicle control, and communications
HPE’s Bi-directional IoT platform
Control smart car functions based on swarm intelligence by real-time analytics

Universal HPE IoT platform

Device and Service Management
- Network Infrastructure Proxy
- Data Aggregation and Verification Layer

Automotive Hub (Micro services)
- Real-time Data Service Cloud
- All-time Data Analytics

TCU

Smart Functions
- Safety: Emergency assist...
- Comfort: window close...
- Maintenance: OTA Software Update
- Efficiency: Smart Energy Mgmt.
Smart City
<table>
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<tr>
<th>HPE IoT solutions enable smart city use cases</th>
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<tbody>
<tr>
<td><strong>Smart Water</strong></td>
</tr>
<tr>
<td>Make more informed decisions, protect city’s water supply and prevent water waste using data from detecting water pressure, temperatures, and leaks</td>
</tr>
<tr>
<td><strong>Smart lighting</strong></td>
</tr>
<tr>
<td>Save time for maintenance crews and save fuel costs—from driving around town to find and replace broken bulbs</td>
</tr>
<tr>
<td><strong>Smart traffic</strong></td>
</tr>
<tr>
<td>Improve traffic flow using traffic signals, the number of vehicles and pedestrians; inform commuters about the next bus or train in near-real time by using digital signage</td>
</tr>
<tr>
<td><strong>Smart parking</strong></td>
</tr>
<tr>
<td>Save energy by turning lights on only when a car approaches; provide real-time parking availability info, reduced circulation times to lower environmental impacts (pollution, noise)</td>
</tr>
</tbody>
</table>

| **Smart building**                           |
| Improve building electricity usage with motion sensor lights which can dim or shut off when a room is empty; alert when there is a leaking pipe using smart meters; monitor energy use of an electric meter and alert when it reaches a specific threshold |
| **Smart industry**                           |
| Enable easier tracking of transport and logistics flows, not only for one industry, but also for multi-industry (e.g., retail, oil, shipping, etc.) |
| **Smart farm**                               |
| Improve water utilization and irrigation by leveraging weather forecast and farm data, key trends and anomalies, and evapotranspiration index |
| **Smart goods**                              |
| Provide real-time city event info; leverage GPS locations and combine with the user profiles to find a suitable parking spot while considering the driver’s sport interest, event starting time, tickets purchased/seat numbers, etc. |
Visit the HPE SAP Competence Center in Walldorf
All SAP experts in the Walldorf location for over 20 years

Book a free one day **WORKSHOP** to discuss your journey to IoT and verify your SAP HANA architecture and configuration

Talk to HPE’s most experienced senior **ENGINEERS** working on latest SAP HANA joint solutions with SAP

Visit our secret **SAP LAB** with latest innovations and certifications (NDA required)

Combine your visit with a **BUSINESS DINNER** and short sight seeing in the beautiful city of Heidelberg

Contact: rupert.holzbauer@hpe.com for arrangements
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Discover 2016

London 29 November – 1 December
Thank you