TECHNOLOGY TRANSFER PRESENTS

GERHARD BAYER

THE INTERNET OF THINGS

BUILDING AND INTEGRATING CONNECTED SYSTEMS

APRIL 20-21, 2017

RESIDENZA DI RIPETTA - VIA DI RIPETTA, 231
ROME (ITALY)

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ABOUT THIS SEMINAR

The Internet of Things (IoT) is evolving into a collection of physical objects that communicate over standard Internet protocols. As a result, much of the physical world is becoming an intelligent information system. It will transcend every area of our lives: from consumer devices like smart home control systems and wearables to retail and industrial systems. Analysts predict that the total "Value at Stake" (i.e. economic impact) of the IoT will grow to $15 - $20 Trillion within the next few years –equivalent to the size of the entire US economy.
This allows enterprises to close the intelligence gap in their product lifecycle when products are in the hands of consumers (e.g. connected cars); municipalities can build smart cities managed through real-time dashboards; farming can reach a new level of productivity; retailers know when a customer approaches an isle and flash personalized promotions; the manufacturing floor can be integrated with the supply chain; remote and predictive maintenance increases availability and reduces cost; the extraction industry moves toward highly automated operations. The applicability of the IoT is endless, and the impact on competitiveness is too significant for any company to afford ignoring it – if you don't get on board now, you will be left behind.
How can the IoT become an integral part of Enterprise IT? An integrated IoT Enterprise needs to amalgamate all major areas of the IT landscape: physical objects are connected to a Cloud, providing the scalability that is required to manage Millions of devices; the generated data volume may necessitate a Big Data approach way beyond today's scale, and advanced analytics capabilities to turn streaming data into actionable information; the physical world needs to integrate with enterprise applications like CRM and ERP; the vastly extended IT ecosystem creates security issues on an unprecedented scale; in many cases the user interaction is implemented on a smart phone or tablet to support employees in the field. Defining and executing this vision of the integrated IoT Enterprise is key to realizing the Value at Stake.

BENEFITS OF ATTENDING

- Understand the essential components of the IoT
- See which industries exploit the IoT today and what applications are emerging
- Learn about the typical solution architectures
- Understand the complete technology stack that makes up an advanced IoT ecosystem
- Learn why integration is critical to turn IoT into an enabling technology for new business initiatives
- Understand which existing and emerging standards can be employed
- See what the strategies of major vendors are and how their tools stack up
- Understand the new security risks and what can be done to mitigate them

OUTLINE

1. Introduction and Overview

- Defining the Internet of Things
- Value at stake
- Consumer vs. Industrial IoT
- Industrial IoT vs. m2m
- Information Technology (IT) vs. Operations Technology (OT)
- Industry examples
- Risks & challenges

2. Architectures for IoT

- IoT Reference Model
  - Bridging IT & OT
  - Decoupling and Gateway Topologies
  - Interoperability
  - Legacy Integration
  - Analytics
  - Integrated with the Enterprise
- Fog Computing: the need for speed
- IoT Software Platforms
  - Traditional IT platform extensions vs. native IoT platforms
- How to scale IoT deployments - the rise of the IoT Cloud

3. War of the Protocol Stacks

- Protocols for IoT – overview
- Alternative Internet protocol stack
- Messaging Queuing Telemetry Transport (MQTT)
- Advanced Message Queuing Protocol (AMQP)
- Extensible Messaging and Presence Protocol (XMPP)
- Data-Distribution Service for Real-Time Systems (DDS)
- Comparing messaging technologies for IoT
  - Functionality, performance, scalability

4. The Web vs. the Web of Things

- Representational State Transfer (REST)
  - The concept of resources
  - The uniform interface
  - Hypermedia As The Engine Of Application State (HATEOAS)
- The Web of Things
  - CoAP in the protocol stack
  - The CoAP difference
  - Efficiencies: Web vs. Web of Things
  - CoAP / HTTP compatibility
- WebSocket – an alternative to CoAP?

5. Integration – The Key to Realizing the True Value of the IoT

- Evolution of integration
- Intermediation and the Enterprise Service Bus (ESB)
- Mobile and cloud integration
  - From ESB to “Internet Service Bus”
  - Integration as a Service/iPaaS
- IoT integration
  - M2M / IoT Integration Platform
  - M2M / IoT Integration as a Service
- Data integration
  - Example: Smart City data

6. Standard Bodies, Alliances, Open Source Software

- Why standards?
- AllSeen Alliance
- Open Interconnect Consortium (OIC)
- Eclipse Foundation
- Industrial Internet Consortium (IIC/OMG)
- IETF, IEEE
- OASIS
- Object Management Group (OMG)
- IPSO Alliance
- Open Connectivity Foundation (OCF)
- NIST Internet of Things–Enabled Smart Cities Framework (IES-City)

7. Analytics – Core of the IoT Application Layer

- IoT requirements for analytics
- Supporting analytics technologies
  - Hadoop
  - In-memory databases
  - NoSQL
- Advanced analytics tools
  - Streaming analytics/Complex Event Processing
  - Product examples

8. Security and Management

- Why security is more critical in IoT
  - DDoS attacks reach a new scale!
- IoT vulnerabilities - the new thread vectors
- Security threats in the thing lifecycle
- Certificates for a thing?
- Lifecycle controls
  - Identity of Things (IDoT)
  - Authentication
  - Access control
  - Encryption
- Privacy - what privacy?
- Governance of connected object data - who owns your data?
- Automated discovery and provisioning of edge devices, Just In Time Registration (JITR)
- Remote Management and Over-The-Air (OTA) upates

9. Conclusions

- Smart Buildings in New York City
- Improved user experience for car service provider
- Energy savings in home improvement program
- Smart City: Barcelona City OS
- Step by step guide to building an IoT solution
- What to do on Monday?

WHO SHOULD ATTEND

- IT Managers that need to understand the challenges and opportunities presented by the IoT
- IT Architects who want to define an architecture to facilitate successful integration of the IoT within the overall IT ecosystem, including cloud, mobile, and analytics
- IT Managers and IT Strategists who need to see when and how different technologies can be applied
- IT Professionals who want to obtain an overview of the different approaches to implementing an IoT that are available today
- IT Managers and Consultants who need to recommend different strategies for implementing an IoT

INFORMATION

PARTICIPATION FEE

€ 1300

The fee includes all seminar documentation, luncheon and coffee breaks.

VENUE

Residenza di Ripetta
Via di Ripetta, 231
Rome (Italy)

SEMINAR TIMETABLE

9.30 am - 1.00 pm
2.00 pm - 5.00 pm

HOW TO REGISTER

You must send the registration form with the receipt of the payment to:
TECHNOLOGY TRANSFER S.r.l.
Piazza Cavour, 3 - 00193 Rome (Italy)
Fax +39-06-6871102

within
April 5, 2017

PAYMENT

Wire transfer to:
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GENERAL CONDITIONS

DISCOUNT

The participants who will register 30 days before the seminar are entitled to a 5% discount.

If a company registers 5 participants to the same seminar, it will pay only for 4.

Those who benefit of this discount are not entitled to other discounts for the same seminar.

CANCELLATION POLICY

A full refund is given for any cancellation received more than 15 days before the seminar starts. Cancellations less than 15 days prior the event are liable for 50% of the fee. Cancellations less than one week prior to the event date will be liable for the full fee.

CANCELLATION LIABILITY

In the case of cancellation of an event for any reason, Technology Transfer's liability is limited to the return of the registration fee only.

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Registration fee:
€ 1300

If registered participants are unable to attend, or in case of cancellation of the seminar, the general conditions mentioned before are applicable.

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SPEAKER

Gerhard Bayer is a Senior Consultant with International Systems Group (ISG). He has more than 25 years of industry experience, working for software vendors in a number of different positions as well as for consulting firms. He is currently focusing on large-scale application development and integration projects as Enterprise architect, mentor and teacher of IT seminars, planning consultant and program manager. One of his main interests and expertise is the intersection of Service Oriented Architecture (SOA) with the entire stack of Cloud Computing and integration approaches. Mr. Bayer's industry experience includes Fortune 500 companies in finance, insurance, government, and other industry segments. In one of his most recent projects he has assisted the asset management department of a client with the definition and implementation of a layered services model that followed Best Practices for a Service Oriented Architecture (SOA) that provides a consistent technical framework to achieve a reduction in application portfolio complexity, a higher degree of reuse of Enterprise services, separation of Business Process Management from traditional programming, and increased agility to support new Business relationships. Mr. Bayer holds a MS degree in Physics and a BS degree in Computer Science.