IEEE: Internet of Things

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What does this have to do with IEEE Future Directions and TTM?

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The Internet of Things (IOT)

- Connecting the Non-Physical to the Physical

IEEE Technology Time machine 2011

IOT Distinguished Speakers

- Peter Hartwell, Distinguished Technologist, HP
- Jian Ma, Chief Scientist, Wuxi SensingNet Industrialization, China
- Roberto Saracco, Director, Future Entre Telecom Italia, Italy

Note**:** **IEEE Technology Time Machine 2012**

When/ Where : Dresden Germany May 23-25

URL *(under construction)* : ttm.ieee.org

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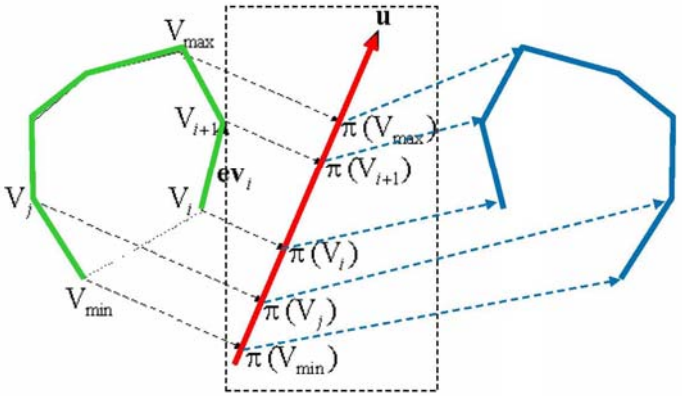
Internet of Things

IEEE Technology Time Machine
Hong Kong June 2011

Enacting the Vision:
Real Objects or Virtual Objects ?

Real Object | Representation in the Network | Clone



For each real object a mirror in the cloud

Duplication
Always available
Object re-creation
Synchronization
New Services

The Virtual Continuum: actions, events on the real object act on network images and clones, and v.v.!!!

TELECOM ITALIA

Telecom Italia - Future Center

Saracco, R. (2011, June) *Fading Boundaries*, presented at IEEE TTM 2011, Hong Kong

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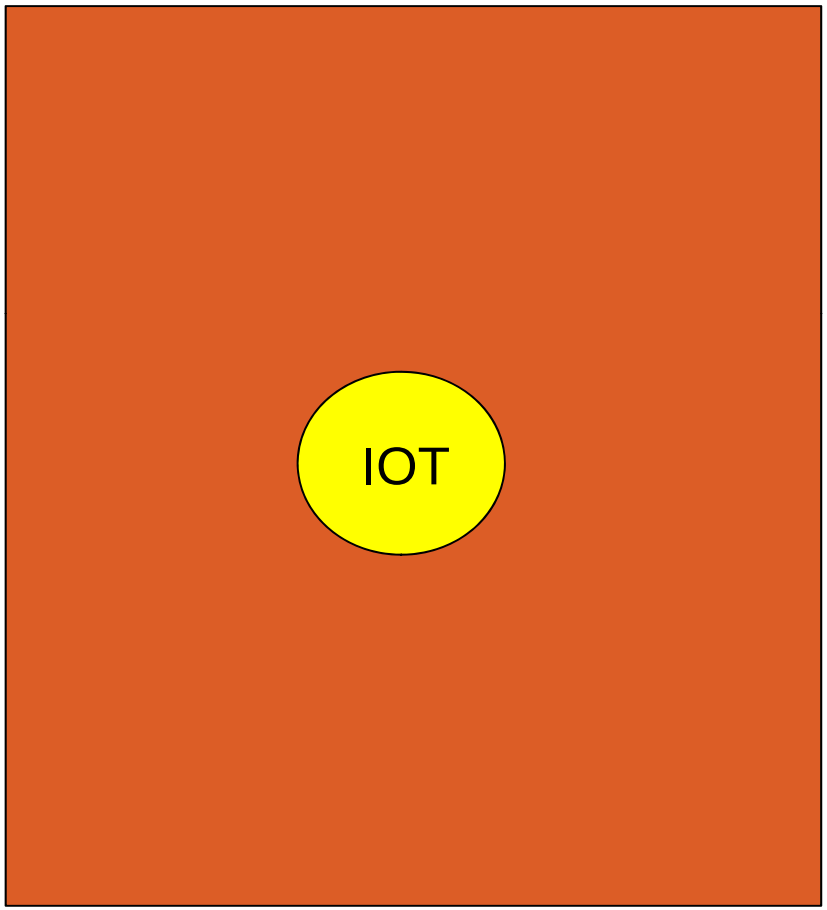
IOT (? Is it for real)



- **IOT Gateway: BridgingWireless Sensor Networks into Internet of Things**
  Qian Zhu; Ruicong Wang; Qi Chen; Yan Liu; Weijun Qin;
  Embedded and Ubiquitous Computing (EUC), 2010 IEEE/IFIP 8th International Conference on
  Digital Object Identifier: 10.1109/EUC.2010.58
  Publication Year: 2010 , Page(s): 347 - 352
  IEEE CONFERENCES
  Abstract | Full Text: PDF (1248 KB)

- **Application of IOT in operation and management of urban underground pipelines**
  Zheng Jianchun; Xing Tao;
  Software Engineering and Service Sciences (ICSESS), 2010 IEEE International Conference on
  Digital Object Identifier: 10.1109/ICSESS.2010.5552299
  Publication Year: 2010 , Page(s): 551 - 552
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  Abstract | Full Text: PDF (74 KB)

- **A GEO-Related IOT Applications Platform Based on Google Map**
  Shi Dayu; Xu Huaiyu; Su Ruidan; You Zhiqiang;
  e-Business Engineering (ICEBE), 2010 IEEE 7th International Conference on
  Digital Object Identifier: 10.1109/ICEBE.2010.42
  Publication Year: 2010 , Page(s): 380 - 384
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  Abstract | Full Text: PDF (1359 KB)

- **Study on the structure of "Internet of Things (IOT)" business operation support platform**
  Qian Xiaocong; Zhang Jidong;
  Communication Technology (ICCT), 2010 12th IEEE International Conference on
  Digital Object Identifier: 10.1109/ICCT.2010.5688537
  Publication Year: 2010 , Page(s): 1068 - 1071
  IEEE CONFERENCES
  Abstract | Full Text: PDF (950 KB)

- **The application of internet of things(IOT) in emergency management system in China**
  Zhang Ji; Qi Anwen;
  Technologies for Homeland Security (HST), 2010 IEEE International Conference on
  Digital Object Identifier: 10.1109/THS.2010.5655073
  Publication Year: 2010 , Page(s): 139 - 142
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  Abstract | Full Text: PDF (1281 KB)

- **Drugs interaction checker based on IoT**
  Jara, A.J.; Alcolea, A.F.; Zamora, M.A.; Skarmeta, A.F.G.; Alsaedy, M.;
  Internet of Things (IOT), 2010
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  Publication Year: 2010 , Page(s): 1 - 8

THE INTERNET OF THINGS

BY ROBERTO SARACCO

The Internet of Things (IoT) refers to the vision that in the next 20 years, a revolution in device-to-device communication will take place that will be comparable to the revolution in person-to-person communication that erupted in the last two decades with the Internet and World Wide Web. We believe the vision is credible—that the second revolution will in fact occur and is already beginning before our eyes.

The IoT is going to be more than devices talking for one reason or another among themselves. Things equipped with sensors and actuators will become part of the Internet, just as today information and services are part of the Web. Thus, we will be able to browse for "things" just as today we search for information. We will be able to create environments out of things, just as today we can mash up services and information.

Examples are abundant, from the sublime to the mundane. In South Korea, a wireless network of 663 sensors constantly monitors conditions on the Jindo Bridge, which connects the country's southernmost tip with Jindo Island. Developed by teams at the University of Illinois, the University of Tokyo, and Korea's Advanced Institute of Science and Technology, the network wireless switch for the fan or light that you can put in any convenient spot.

In fact, if you also happen to be tired of hearing family members and houseguests complain about where the wired switches in your house happen to be, you might also be able to find wireless switches that just slap onto the wall and can be moved about as your kids get bigger and their grandparents get smaller.

What those situations have in common are simple, inexpensive devices linked in wireless networks, which might or might not involve some human intervention. That is, the IoT depends on networked sensors and actuators, which can be more or less sophisticated. To the extent there is embedded intelligence, an embodiment of the IoT can function

IOT Central to Connecting the non-physical to the physical

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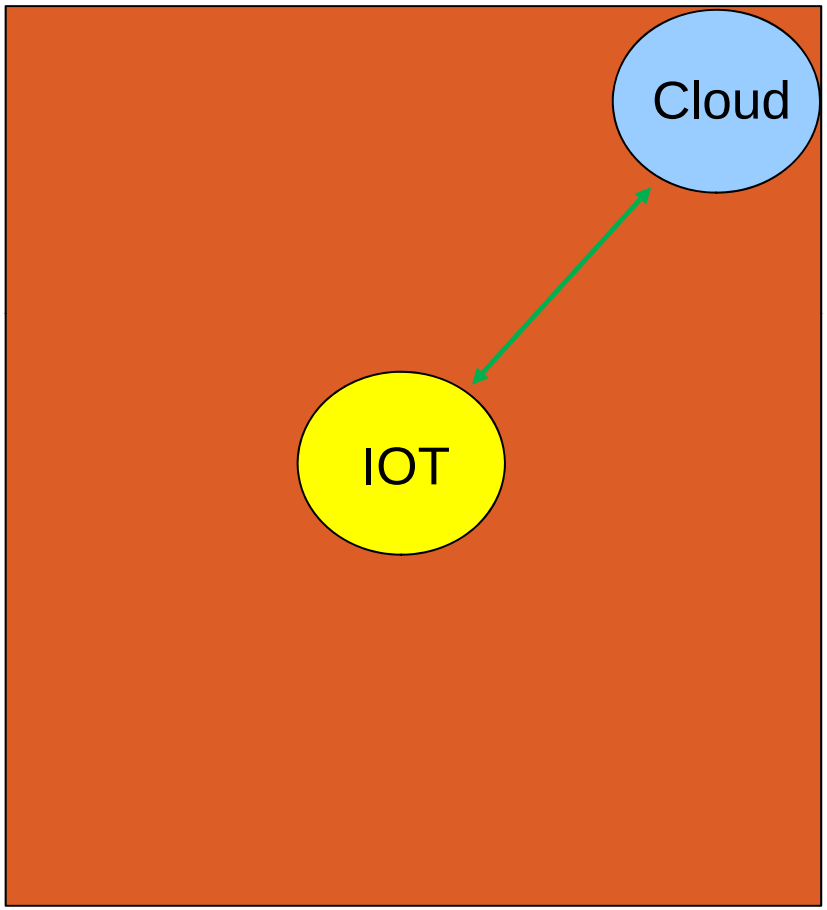

PHM PLAYS

-Secure Transaction
-Serviceability
-Maintainability
-Elasticity

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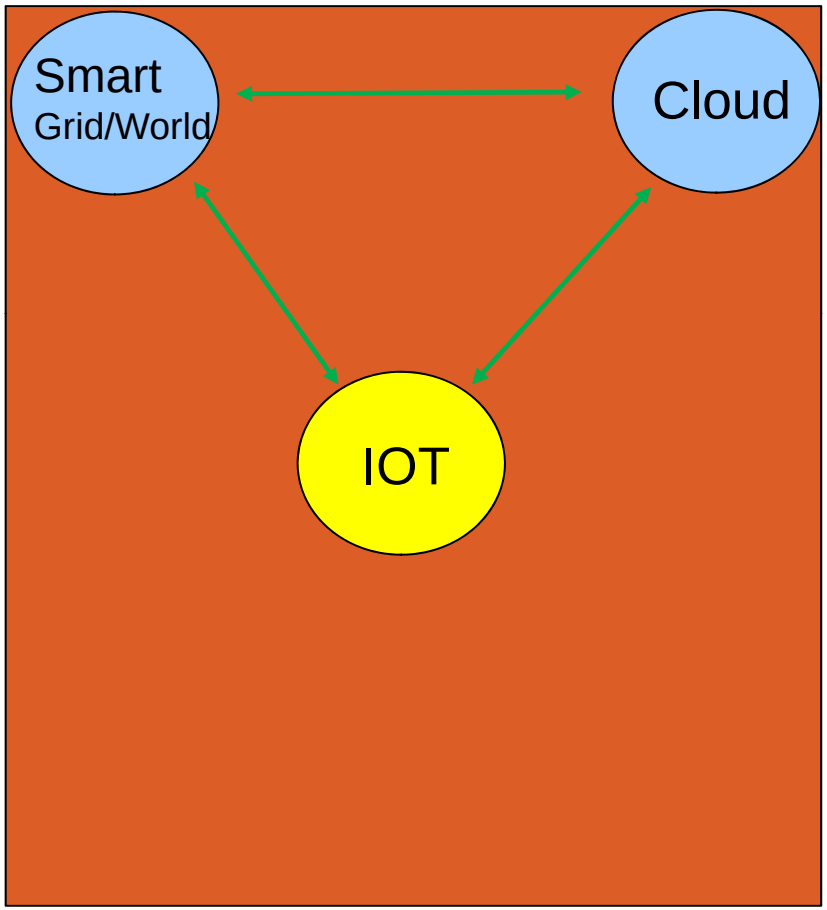

IOT PLAYS

-Secure Transaction
-Serviceability
-Maintainability
-Elasticity
-Reliability
-Balance of service
-Failure Detection
-Planned Diagnosis

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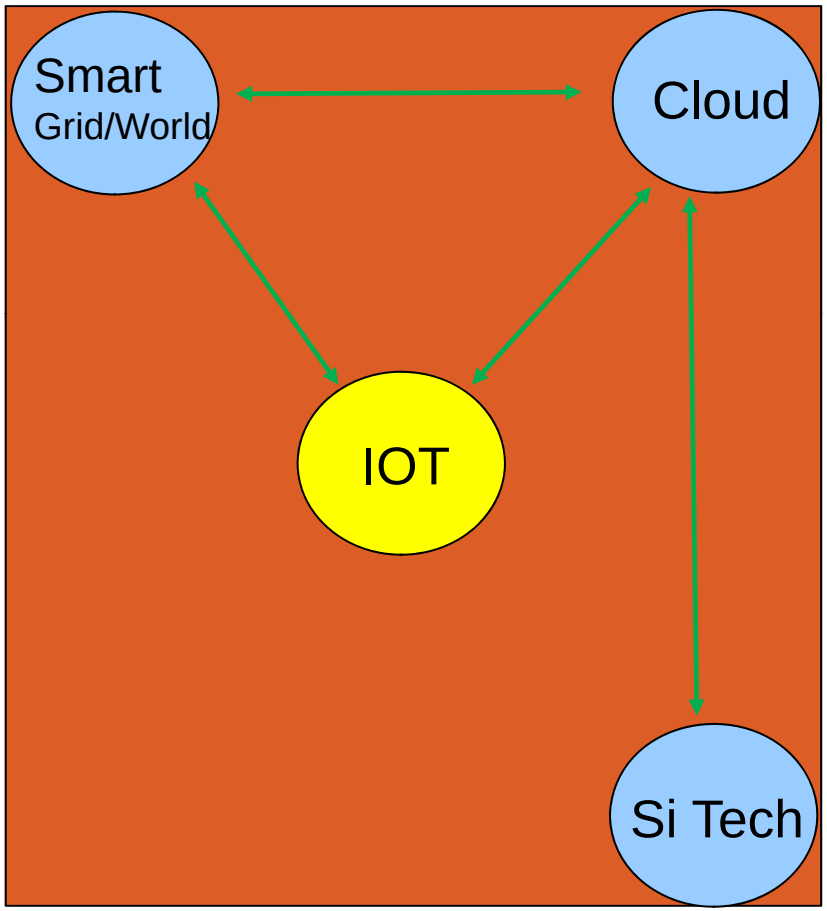

IOT PLAYS

-Secure Transaction
-Serviceability
-Maintainability
-Elasticity
-Reliability
-Balance of service
-Failure Detection
-Planned Diagnosis
-Power Analysis
-Sensor Integration
-On the fly …

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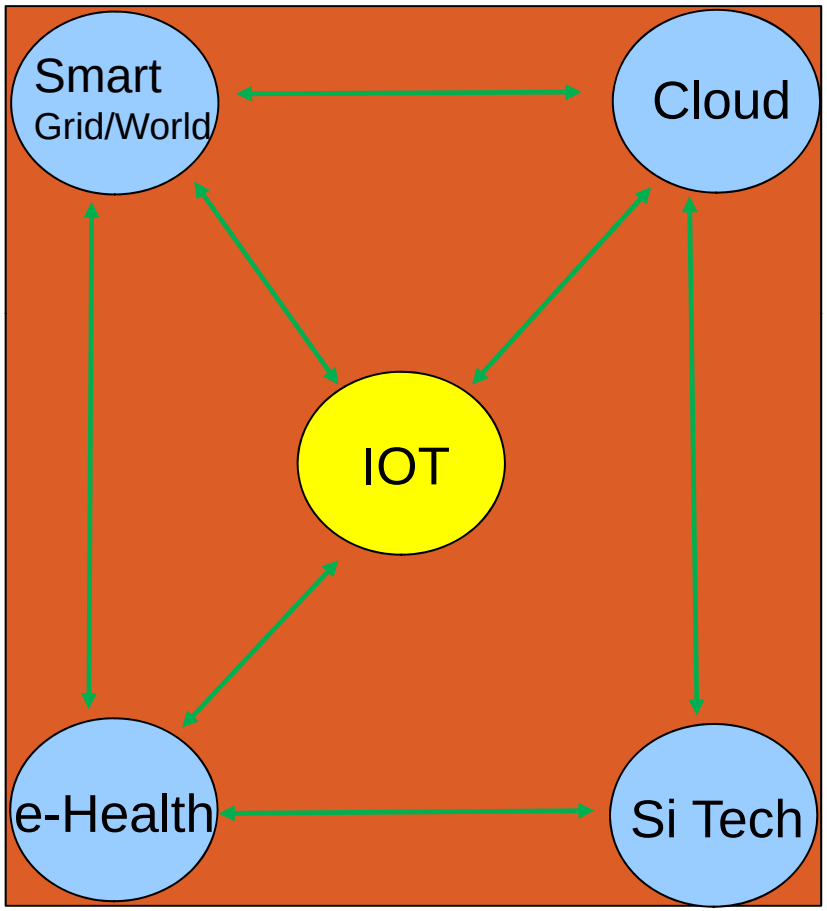

PLAYS

-Secure Transaction
-Serviceability
-Maintainability
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-Balance of service
-Failure Detection
-Planned Diagnosis
-Power Analysis
-Sensor Integration
-On the fly …
-Accuracy
-Dependability
-Avoidance
-Communicative and Adaptive

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Thankyou !

Questions? w.r.tonti@ieee.org