Testing laboratories for emerging networks

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Testing laboratories for emerging networks

In 2012, SPbSUT founded testing laboratory of emerging networks

This presentation contains SPbSUT experience in the creation and development of testing laboratory

What kind of testing TL performs?

- Functional testing
- Load & Stress testing
- Conformance testing
- Interconnect testing
- Services testing
- QoS testing
- Mobility & Roaming Testing

Testing laboratories for emerging networks

Testing approach based on use of model network.

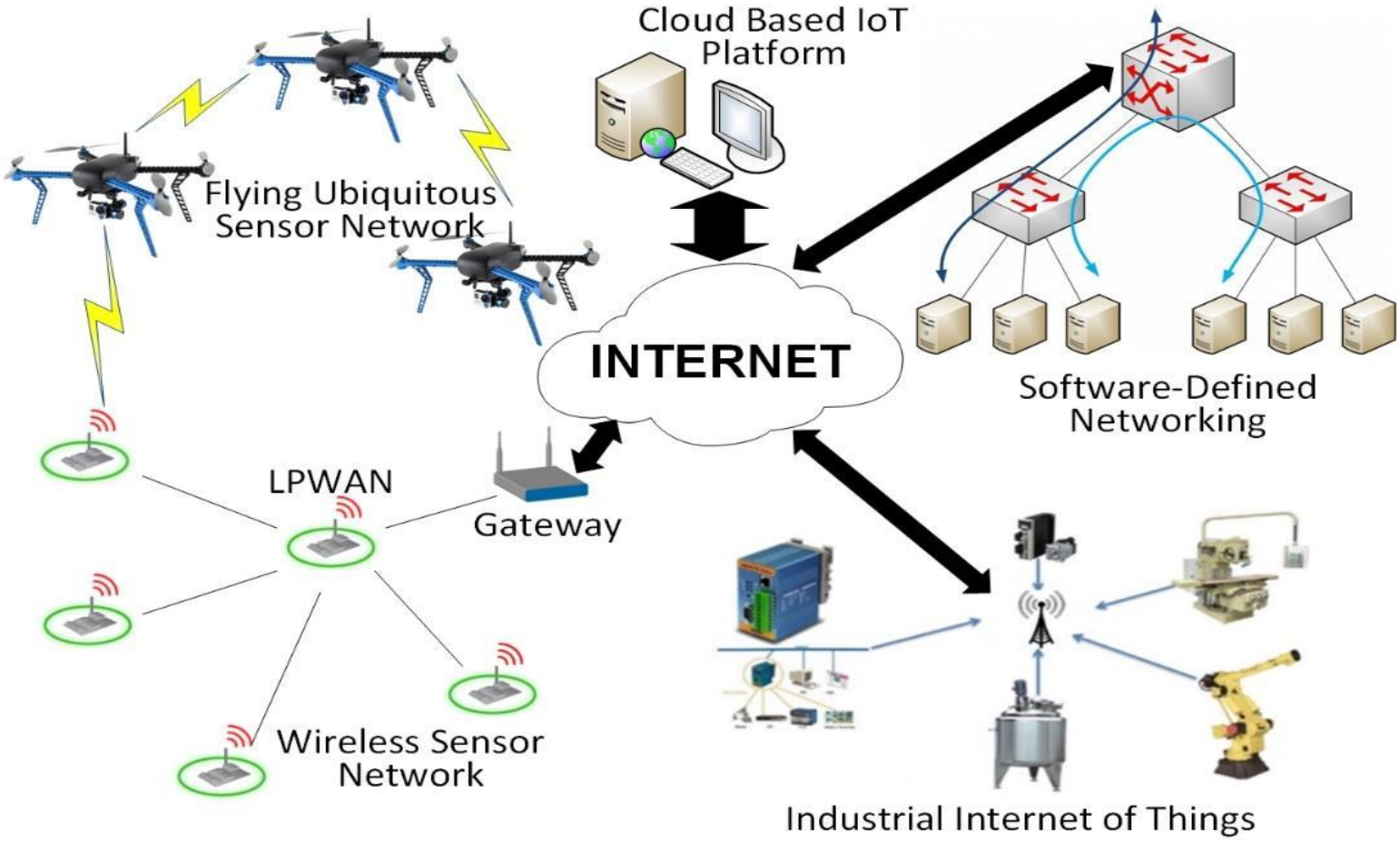
Model network [ITU-T Q.3900]: Network which simulates the capabilities similar to those available in present telecommunication networks, has a similar architecture and functionality and uses the same telecommunication technical means

TL's model network includes 5 segments: wireless sensor network, flying ubiquitous sensor network (FUSN), Industrial Internet of Things segment, SDN-based segment, cloud IoT-platform.

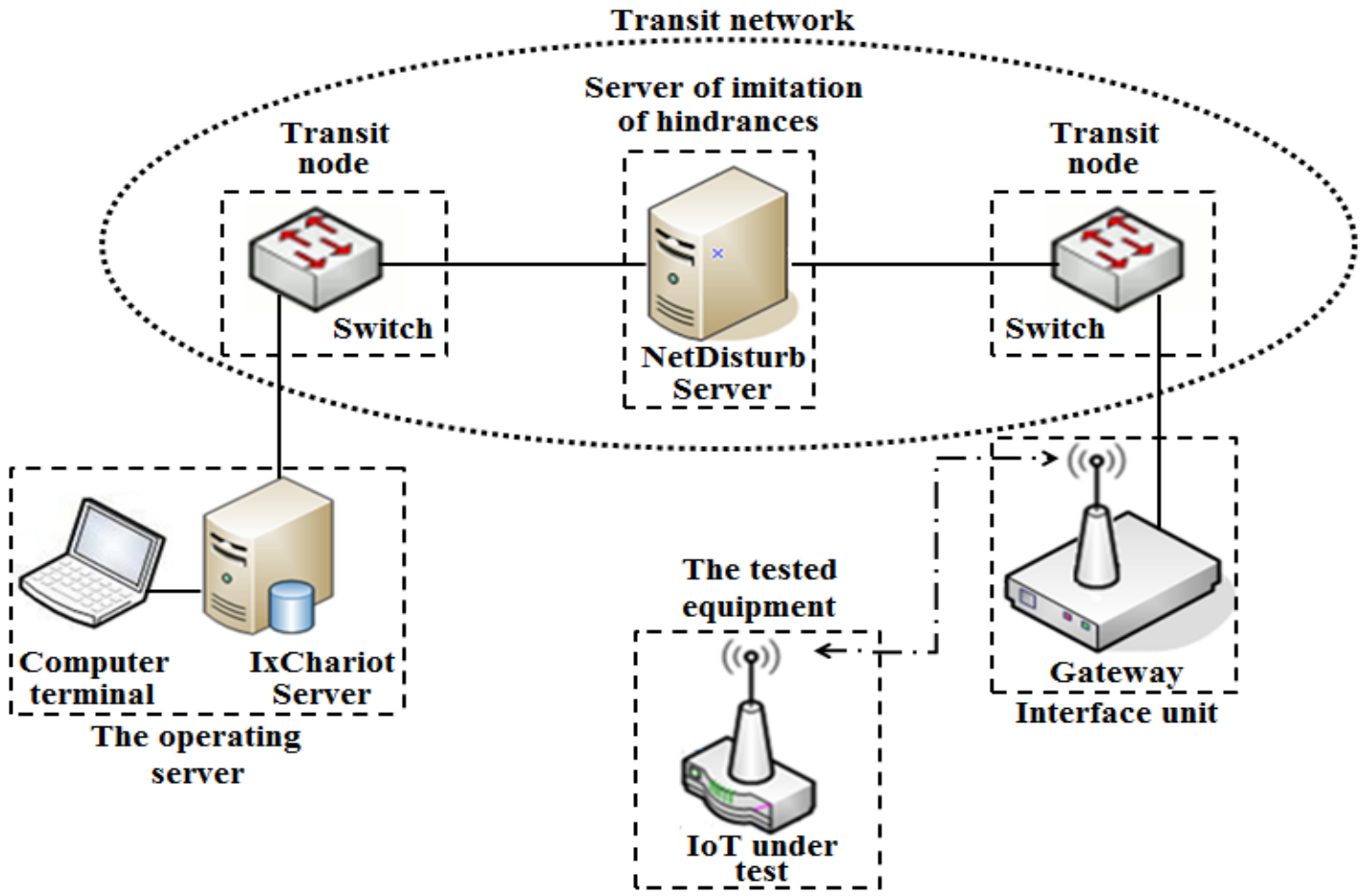
Technologies to be tested on current Model Network

- Software-defined Networking (SDN);
- Ultra-dense network (in collaboration with industry, on stadiums holding FIFA World Cup 2018 in Russia)
- IPTV (Quality of Experience)
- LPWAN
- Industrial Internet of Things

Architecture of Model Network



Base Part of Model Network

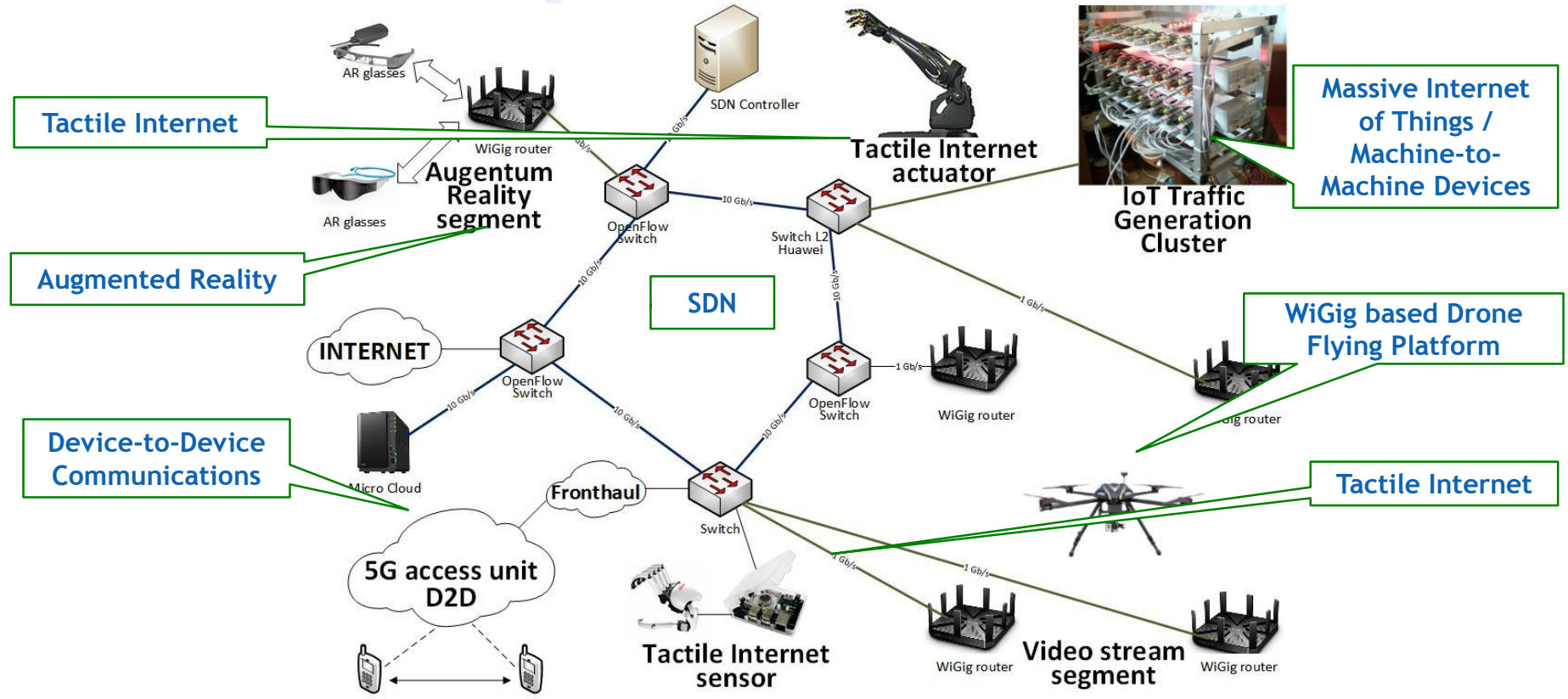


Why laboratory growth rapidly?

Mutually beneficial cooperation

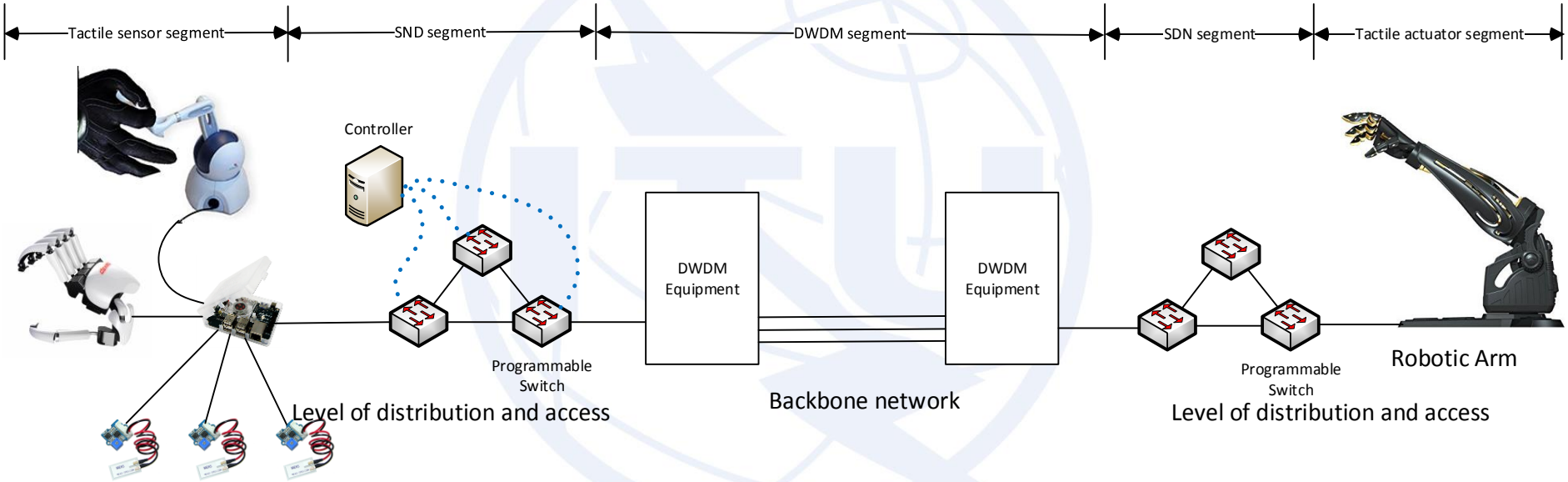
- Most **manufacturers** ready to give equipment to lab for free (they are interested in to get a feedback about found bugs and vulnerabilities).
- **Academic** institutions interested in use model network for student practice and research.
- **Industry** (telecom providers) interested in to use model network for services testing and business case modeling.

Coming soon


Tactile Internet
Augmented Reality
Device-to-Device Communications
Massive Internet of Things / Machine-to-Machine Devices
WiGig based Drone Flying Platform
Tactile Internet
AR glasses
WiGig router
SDN Controller
Tactile Internet actuator
IoT Traffic Generation Cluster
AR glasses
Augentum Reality segment
OpenFlow Switch
Switch L2 Huawei
SDN
INTERNET
OpenFlow Switch
OpenFlow Switch
WiGig router
Micro Cloud
Fronthaul
Switch
5G access unit D2D
Tactile Internet sensor
WiGig router
Video stream segment
WiGig router
10 Gb/s
1 Gb/s

Internet of Skills E2E testing

5G + Tactile Internet = globalization of your skill set



The delivery of physical experiences remotely

Deployment of upgraded model network will allow work with follow technologies:

- 5G/IMT-2020
- Internet of Skills
- D2D-communication
- Tactile Internet, networks with ultra low latency (latency measurement for tactile internet)
- Nano Communication Networks
- Augmented Reality
- Real-time and hard real-time systems
- AI for network management

Thank you!

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