

Smart Manufacturing - 5GDNA View

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5G

5G DNA

Deterministic Networking Alliance
确定性网络产业联盟

5GDNA's Mission: Industry Collaboration for 5G Vertical Market



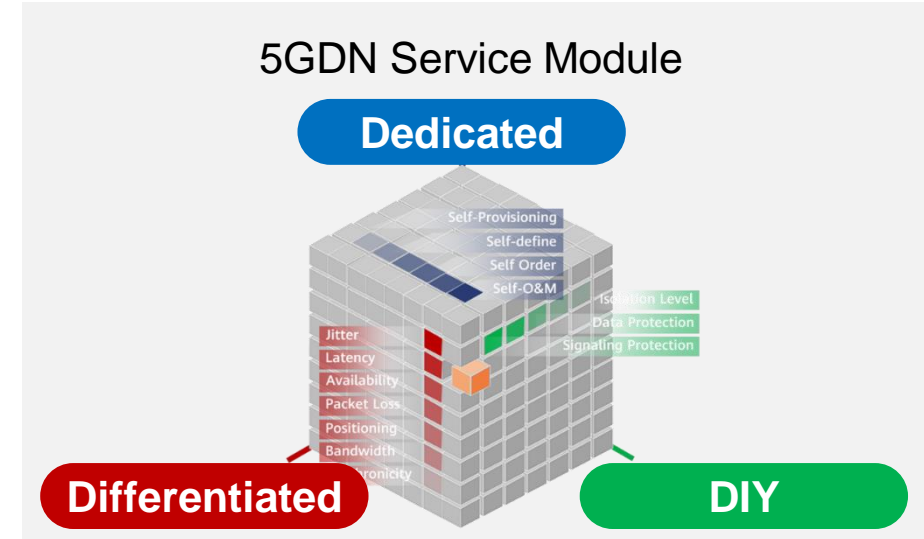
Focus on 5 key verticals
Manufacture, Healthcare, Energy, Multi-media, Transportation

Founded on June 26, 2019

110 members

3GPP MRP

Technology	Ecosystem	Business
<ul style="list-style-type: none"> • URLLC • TSN • 5G LAN • NPN • Slicing... 	<ul style="list-style-type: none"> • Verticals / ICT • 5G terminal and modules • SDO 	<ul style="list-style-type: none"> • PoC • Business case • Commercialize



	Port	Manufacture	Media
Differentiated	◐	●	◐
Dedicated	◐	●	◐
DIY	◐	●	◑

Ref: 5G Deterministic Networking Industry White Paper

Deterministic SLA Is TOP Requirement in Industry Internet



80% of 5G use case is for vertical market, Industry IoT specifically.

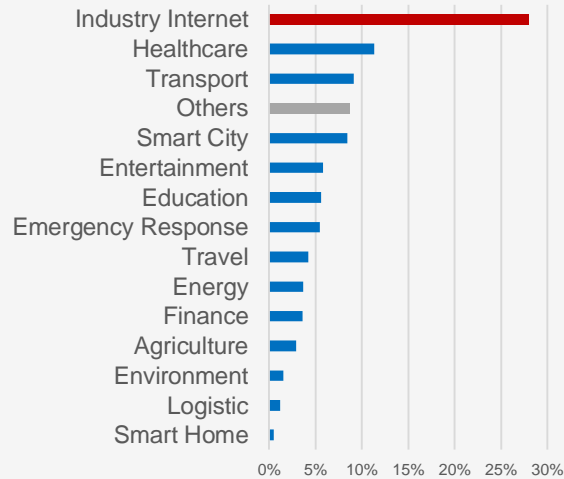
-- MIAO Wei, Minister MIIT

2020

China

- ~5000+ 5G vertical Projects
- Industry Internet is TOP1 segment

3rd Blooming Cup



Use Cases

Massive IoT

- Smart metering
- Industrial sensor
- Material tracking

Broadband IoT

- Video surveillance
- AR assist assembling
- Robot inspection

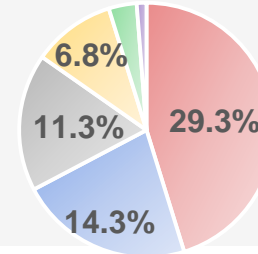
Industry IoT

- Industrial machine vision
- Remote control



Requirements for Deterministic SLA

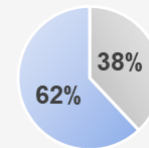
Differentiated



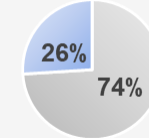
- Bandwidth (uplink/downlink)
- Deterministic Latency
- Reliability
- Positioning
- 5G-LAN
- Time sync

Dedicated

Between Industry Campus and Operator Network

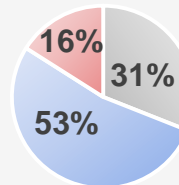


Within one Industry Campus, different application



- Virtual isolation
- Physical isolation

DIY

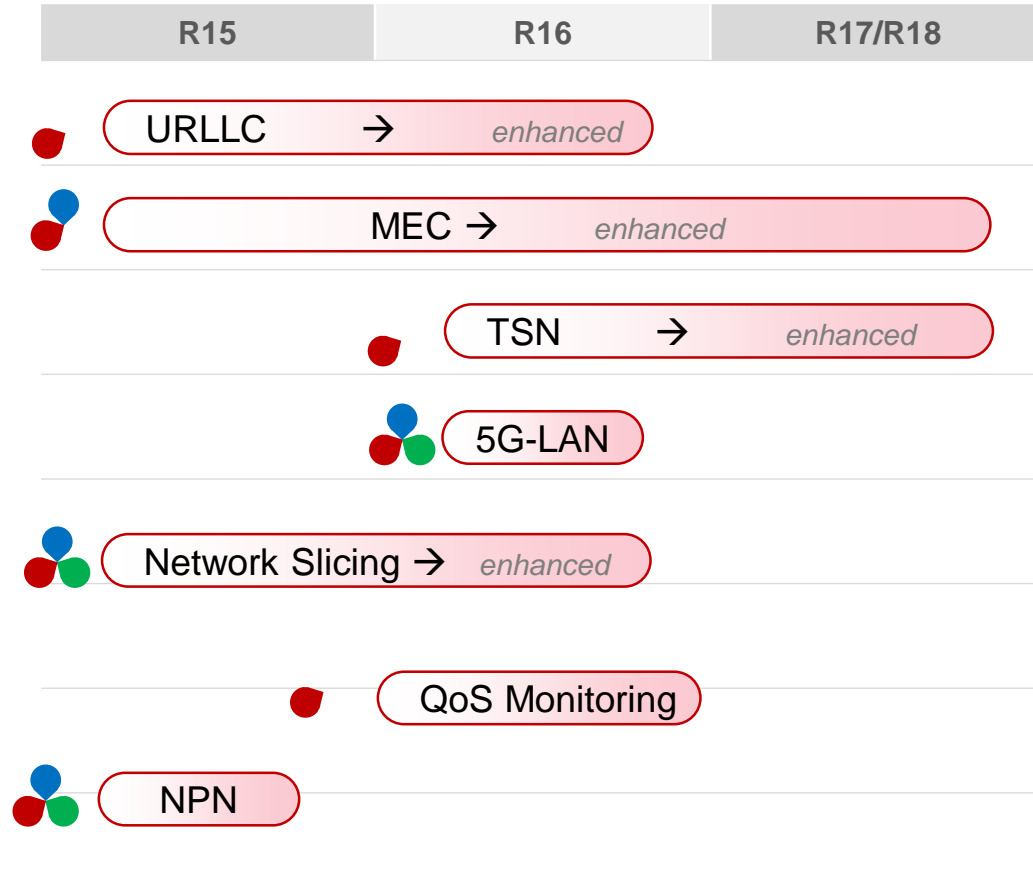


- Monitoring only
- Monitoring/self mgmt (black list etc.)
- Monitoring/self mgmt/self operation

Ref: 5G application innovation progress white paper 2020 CAICT

Ref: Onsite survey of 5GDNA members Dec, 2020 N=39

Proposals of Further 3GPP Evolution from 5GDNA



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Architecture

- 5GS natively support deterministic communication

Industry Ecosystem

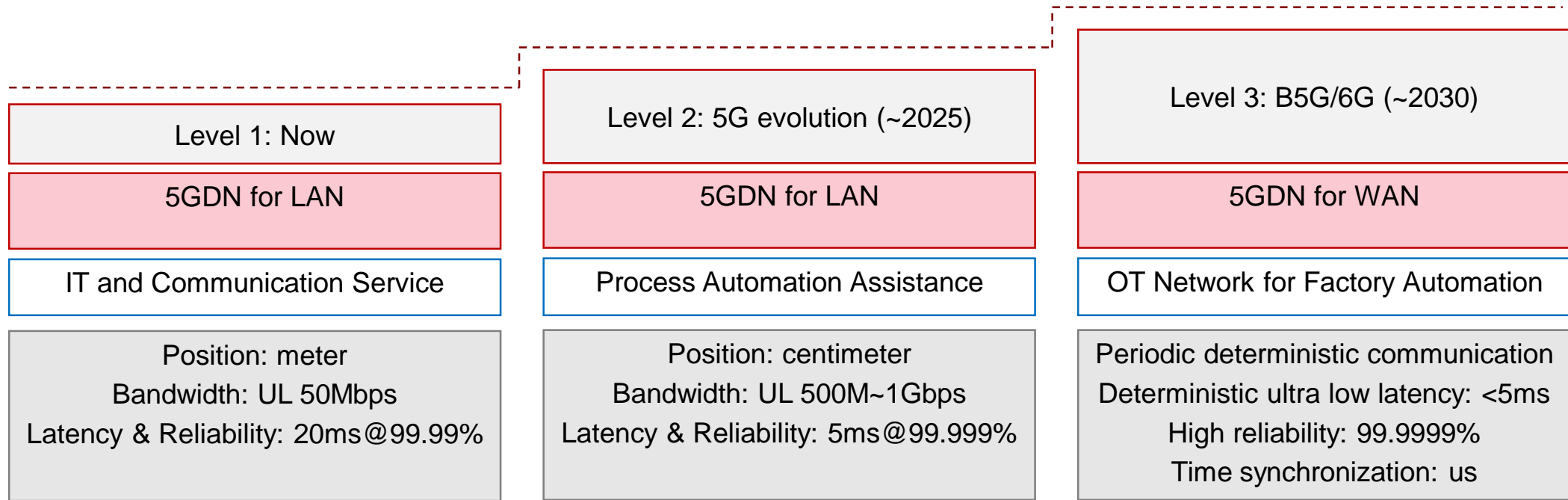
- Collaboration between 3GPP and IEEE/IETF
- Consolidate 3GPP NEF API and ETSI MEC API

Function

- Mapping industry required service KQI and **5GS network new KPIs**
- **Enhance QoS Monitoring**: interval, mandatory parameters
- Enhance URLLC by **more RAN/CN interworking**
- 5G-LAN across multiple SMFs

● Differentiated ● Dedicated ● DIY

Summary: Three Steps to Approach Long Term Target



Thank you.

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