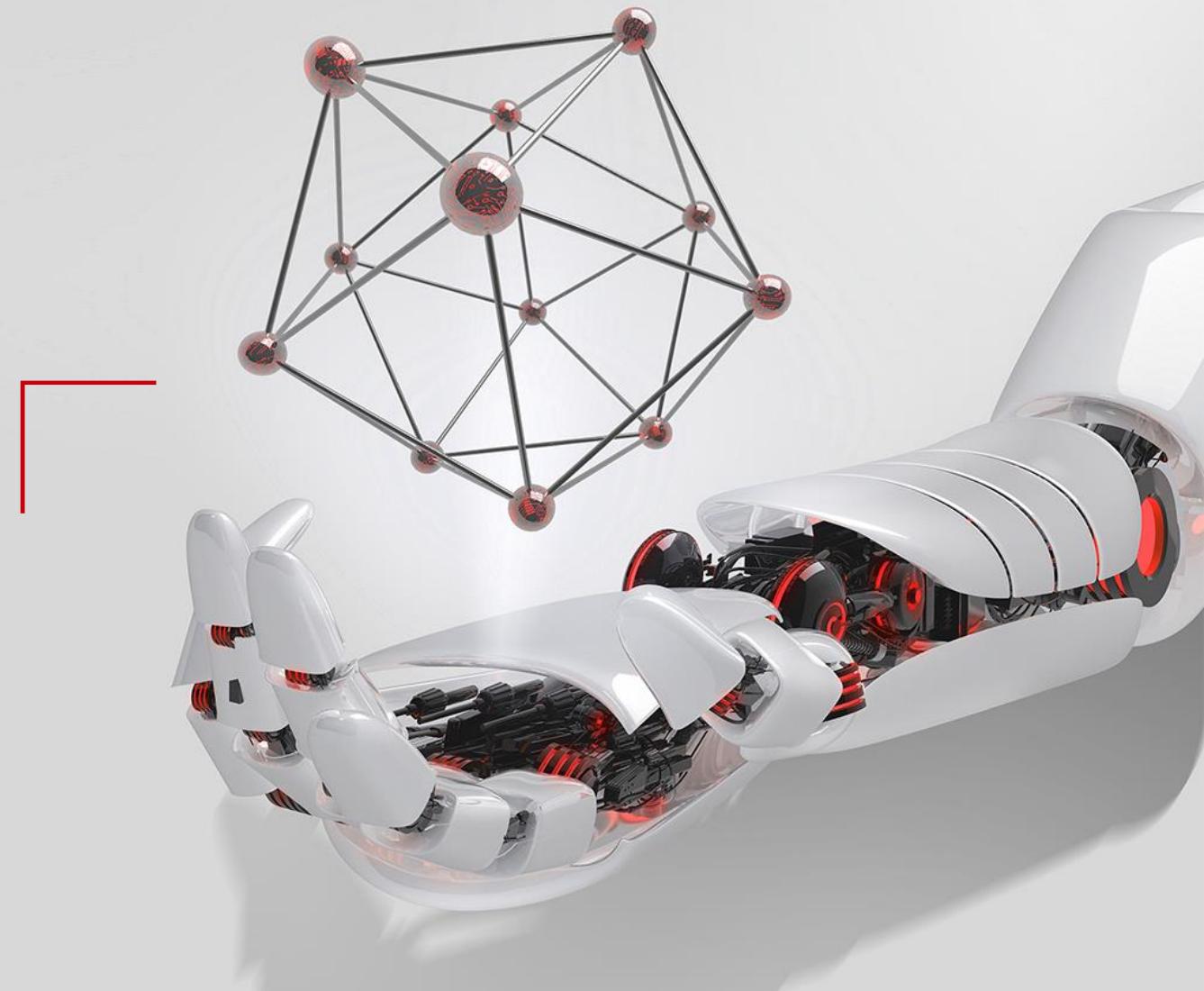


Huawei German Research Center

Research Topics

Dr. Cristian Axenie

Big Data Intelligent Streaming Technologies
IT Software Infrastructure Department
Huawei Research Center
Munich, Germany



Huawei at a Glance



180,000
Employees

80,000
R&D employees



170+
Countries



14
R&D
institutes/labs/
centers



No. 70 in
Interbrand's Top 100
Best Global Brands



No. 72 in the
Fortune Global 500

Huawei – ICT Ecosystem

Cybersecurity

Smart Car



Consumer tech.



Consumer

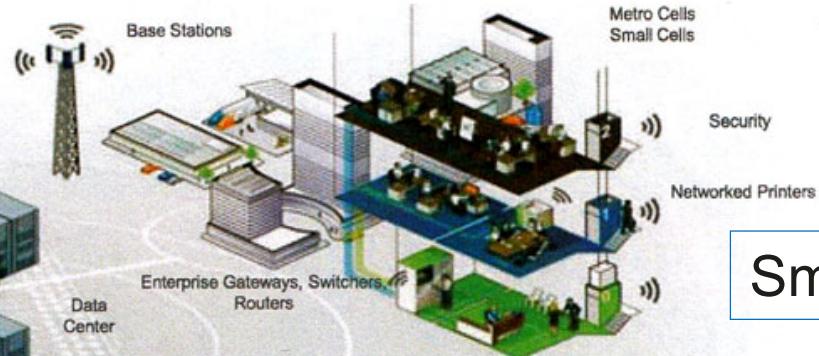


Smart Home

Communications, 5G and beyond



Networking

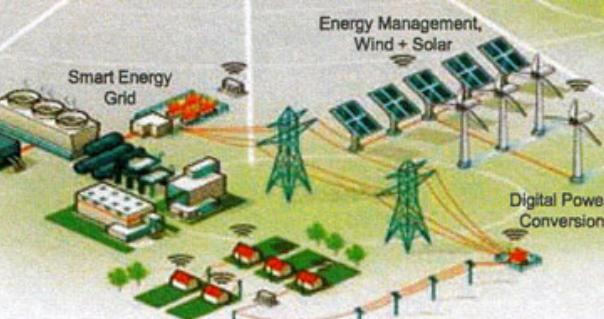


Smart City

Smart Energy



Industrial



Smart Manufacturing

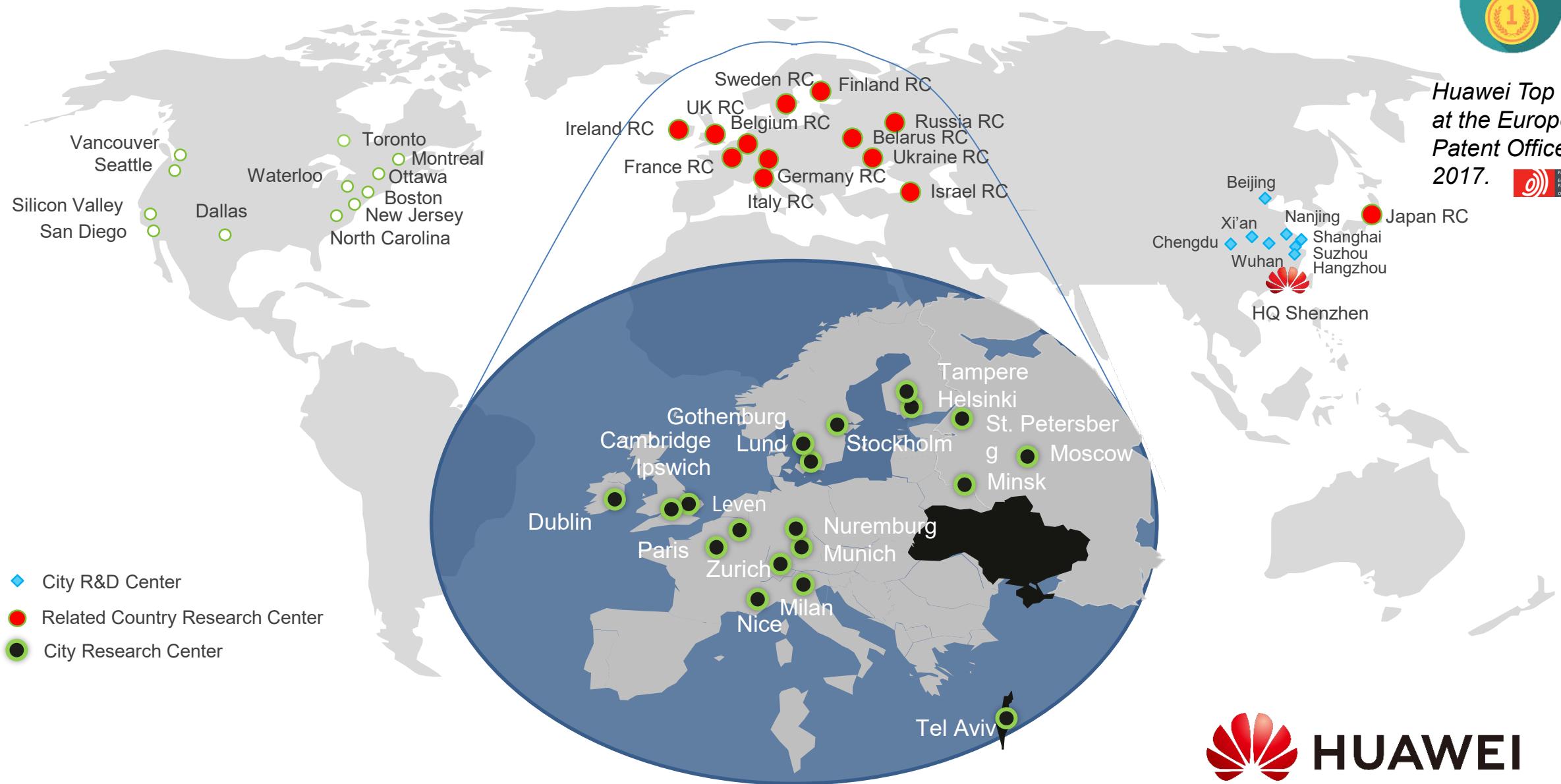
* Incl. Software, Hardware, Optical and Quantum Technologies

 HUAWEI

Huawei – Global Presence – R&D Centers



Huawei Top Filer at the European Patent Office in 2017



Huawei European Research Institute at Glance

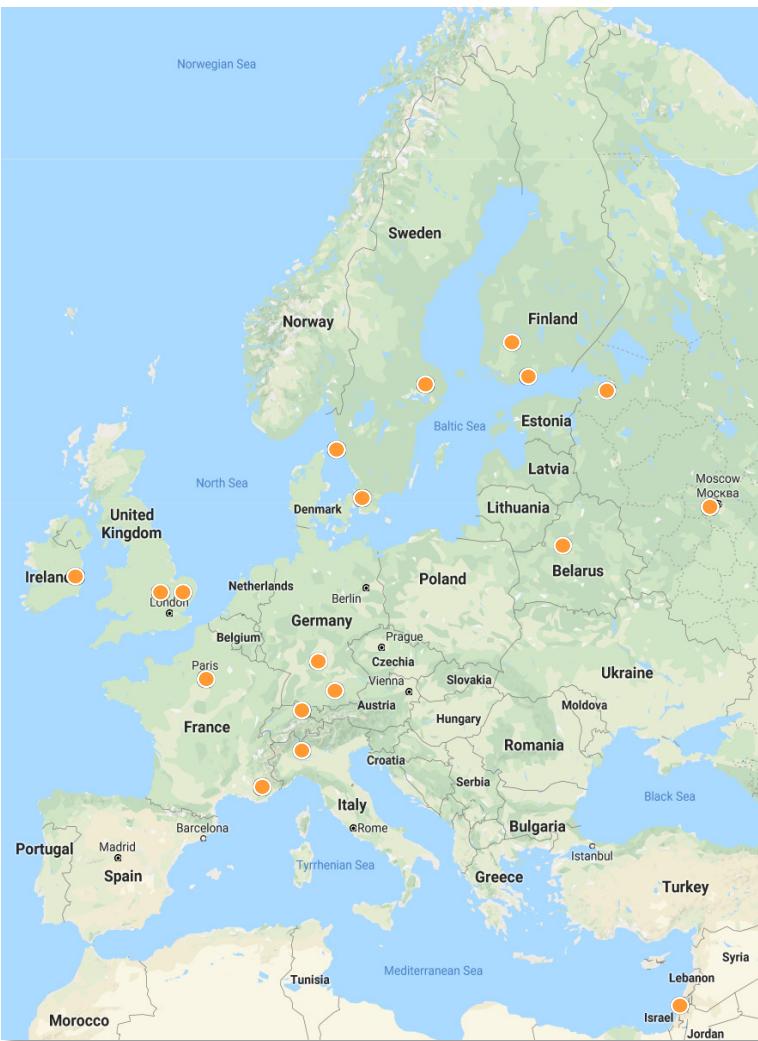
200+ Research projects

150+ Academic institutions are partners

22+ Participation in H2020 projects.

ERI - European Research Institute

1. **1600+** employees, **400+** contractors, **80%+** recruited locally
2. **19** R&D centres in EU, Russia, Ukraine, Belarus and Israel, with ERI HQ based in Leuven
3. Munich Research Center is the largest European Huawei Research Center



**5G & Wireless
Optical
Communications
Data Communications
Photonics
Cyber security &
Privacy
Quantum Technologies
Semiconductors
Thermal Technologies
AI/ML/CV
RF IC
NFV/SDN
Cloud/Big Data
Aesthetics
User experience**

Huawei R&D Centers in Germany – Basic Information



Present all over Germany

- 18 locations, inter alia in Düsseldorf, Munich, Frankfurt and Berlin
- 5 locations for research and development

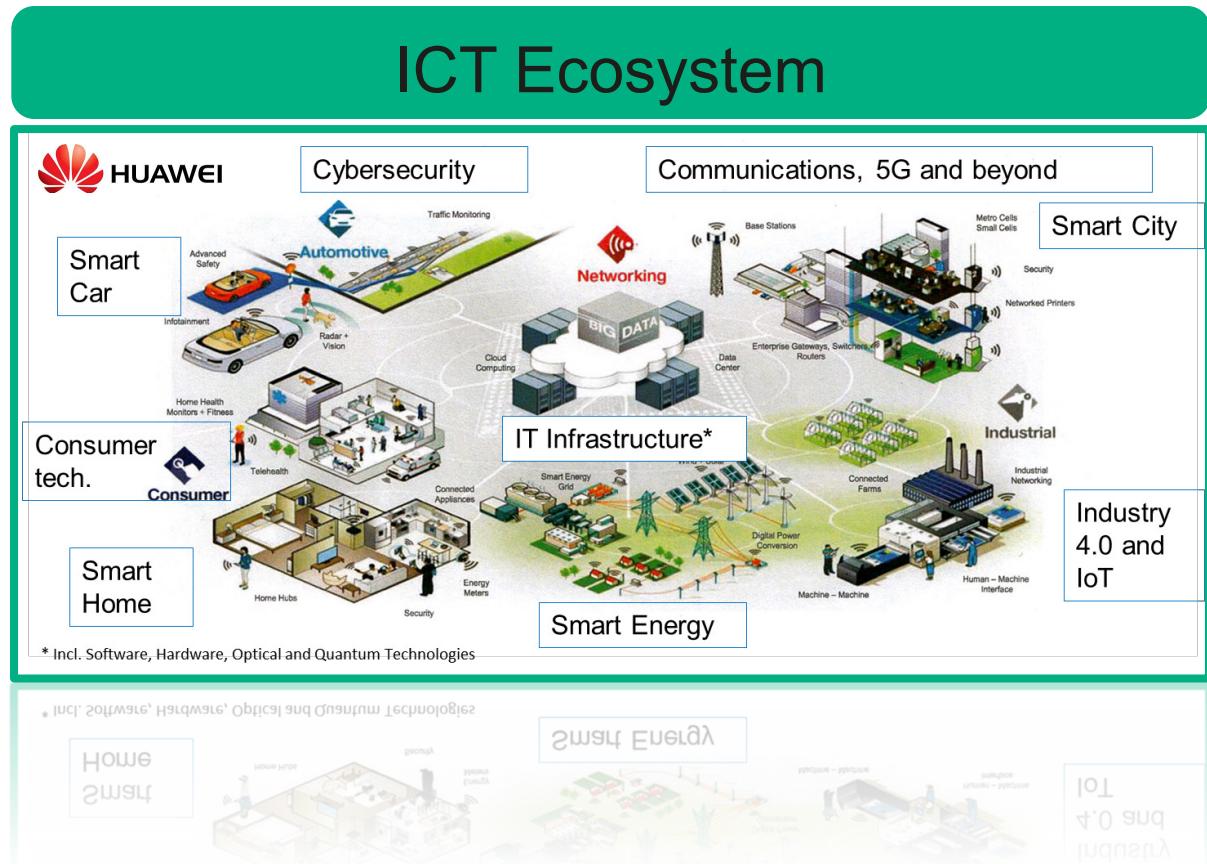
Location of high significance

- HQ of Western Europe located in Düsseldorf since 2007
- European largest R&D center located in Munich

Research and Development

- Research cooperation with more than 20 renowned universities and institutes
- 400 million Euros investment in R&D in 2014-2018,

Huawei Germany – Laboratories and Competence Centers



Lab / Competence Center / Dept.	
1	Advanced Wireless Technology Lab
2	Cyber Security & Privacy Protection Lab
3	Testing & Reliability Engineering Center
4	AAS & MPE Competence Center
5	AATC& Media Lab
6	Light field/Sound field Reproduction Technology Lab
7	IT Software Infrastructure Lab
8	Optical and Quantum Comm. Lab
9	Applied Network Technology Lab
10	Power Conversion Technology Lab
11	MBB & Home Device M2M Competence Center
12	Quantum Computing Joint Lab
13	Device Software Engineering Technology Lab
14	Media Codec Lab

Applied Communication Technology Lab

3G

4G

5G

2G



Machine Type
Communications

Positioning

- Cooperative positioning



5G and Next Generation Networks



AAS (Antenna)& MPE Competence Center

Antennas and Active Antenna Systems

Compact Passive Multi Band Base Station Antennas

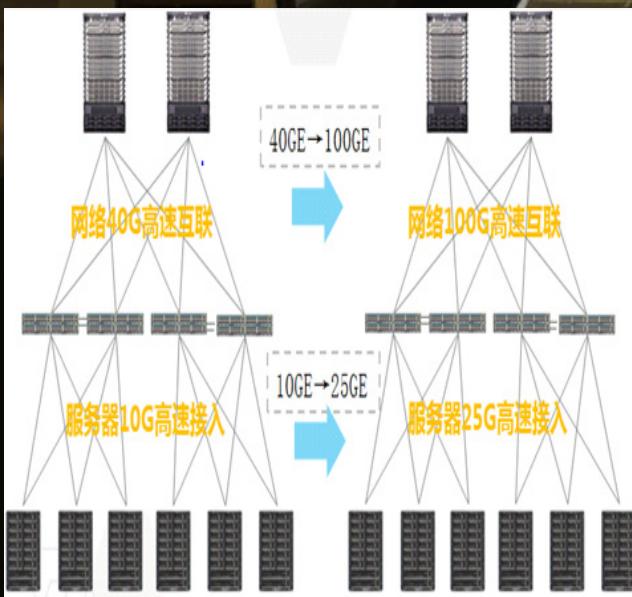
Cost Efficient Massive MIMO Antenna Systems

Materials and Processes

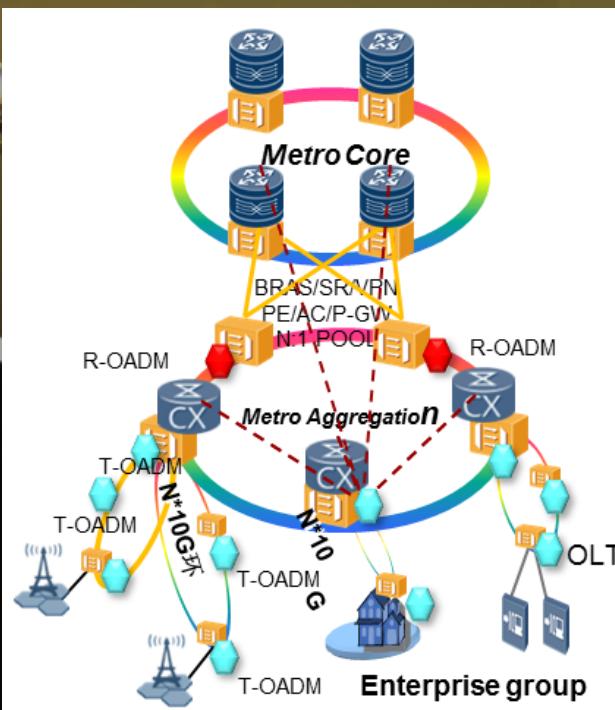
5G Automotive Antenna Systems

Optical & Quantum Lab

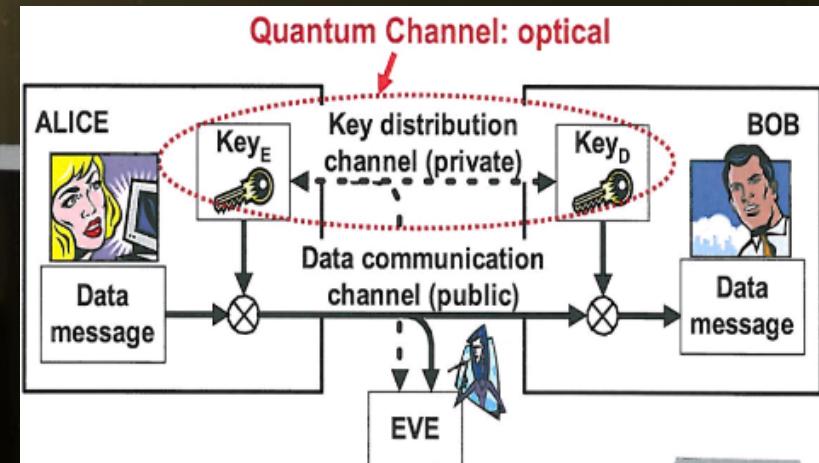
Data Center Optical Inter-connection



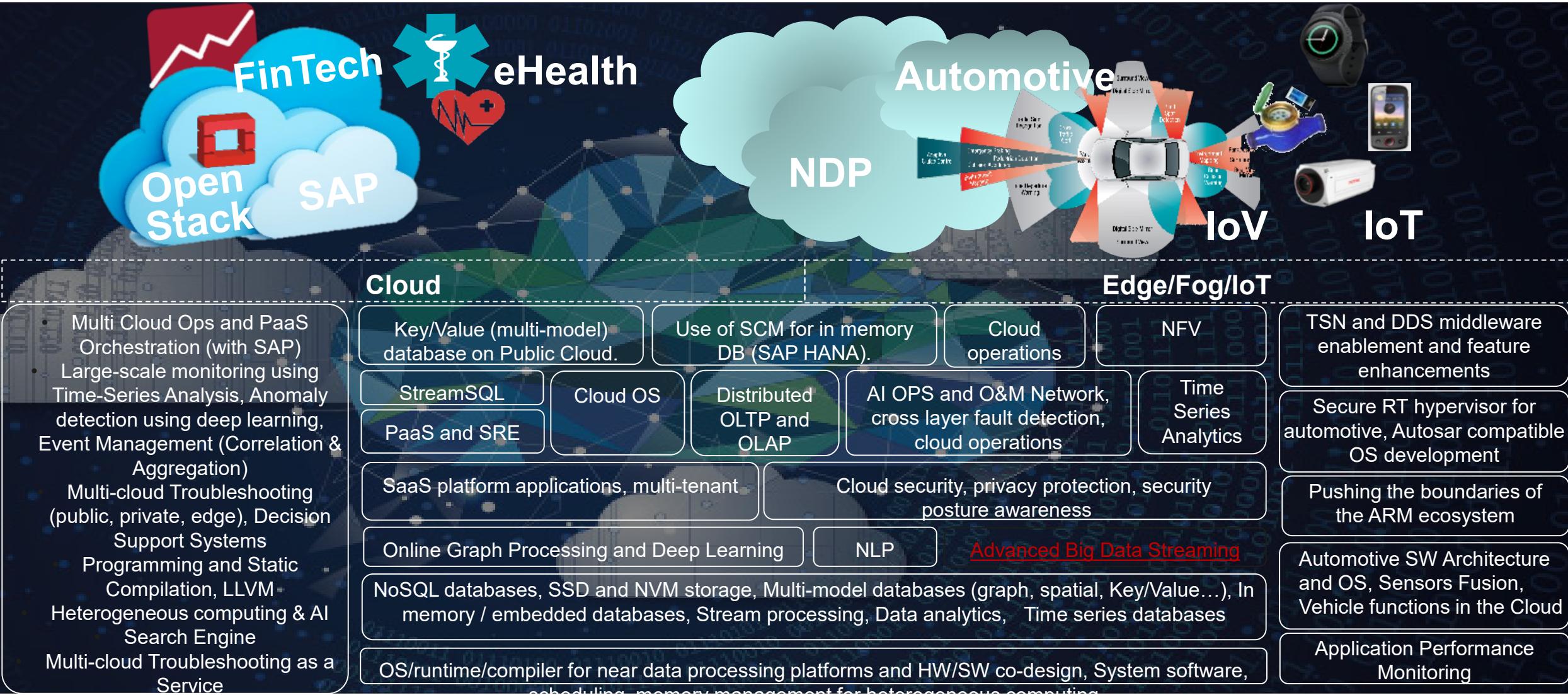
Metro Network



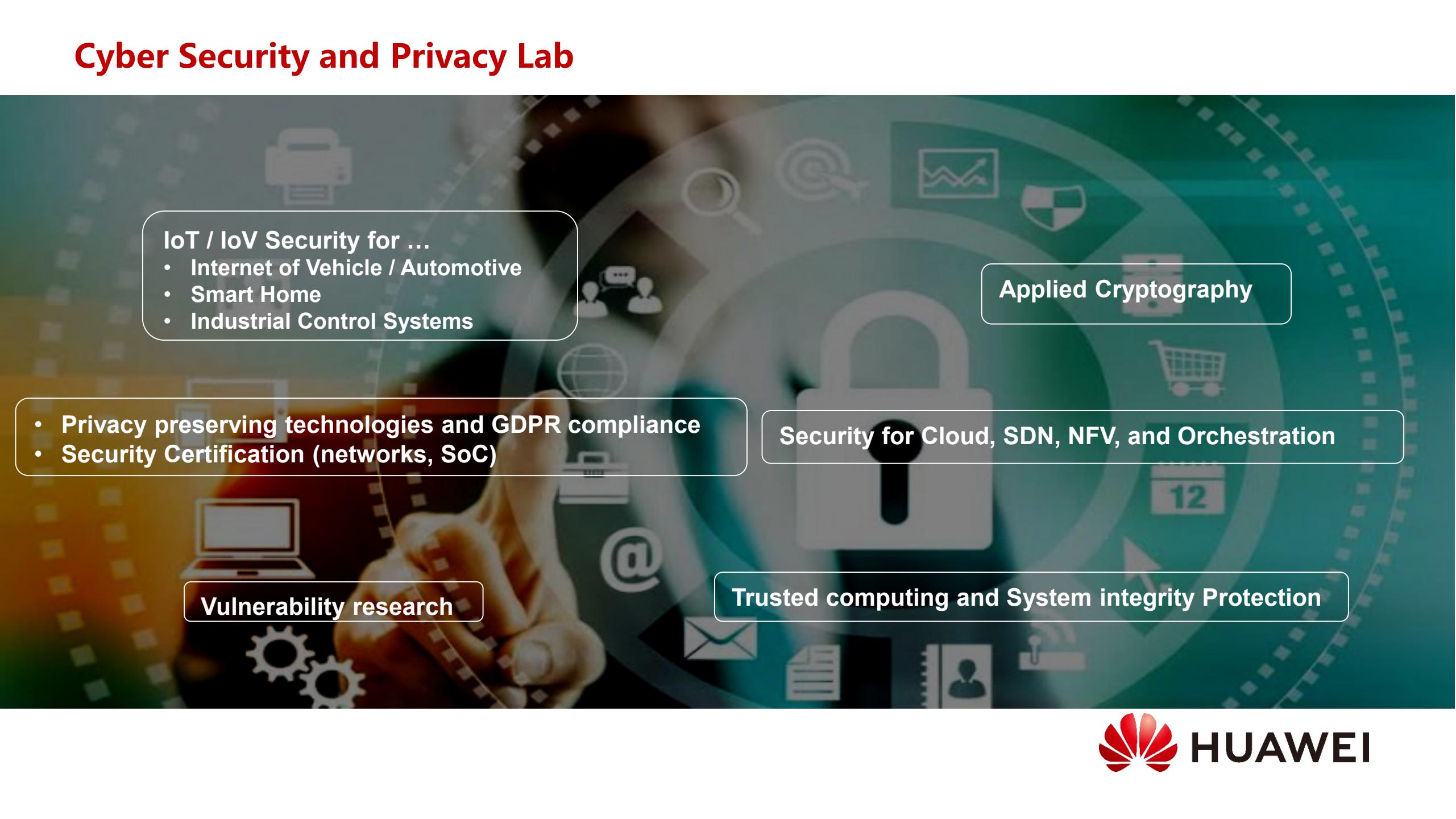
Quantum Communication & Computing



IT Software Infrastructure Lab



Cyber Security and Privacy Lab

- 
- IoT / IoV Security for ...**
- Internet of Vehicle / Automotive
 - Smart Home
 - Industrial Control Systems

Applied Cryptography

- Privacy preserving technologies and GDPR compliance**
- Security Certification (networks, SoC)

Security for Cloud, SDN, NFV, and Orchestration

Vulnerability research

Trusted computing and System integrity Protection

AATC & Media Lab

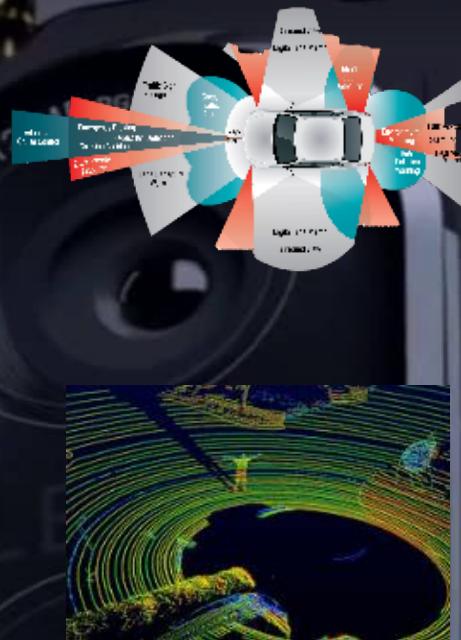


Advanced materials
and processing



Cameras

- Smartphone Camera Design and Processing
- Optical Design and Simulation



Automotive Sensing
technology



Advanced Laser
Technology

AR/VR and Sound

- Sound Media Technology
- AR Light field Technology



Test & Reliability Competence Center



RAS Competence Center



Automatic Test Equipment



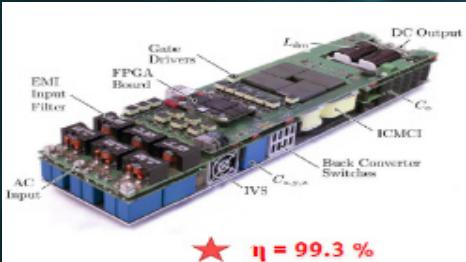
R&D Tools

Test Design Center

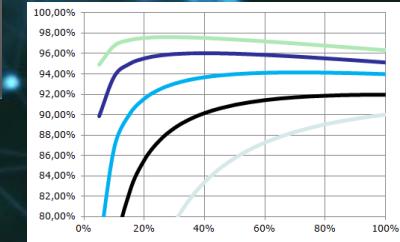


Power Conversion Technology Lab

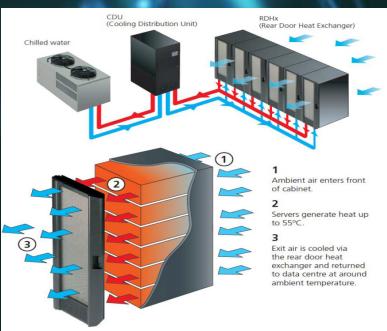
Power Electronics Technology



Power Topologies



Power System Architecture



Demonstration and Test Center



Applied Network Technology Lab



5G and Network Architecture

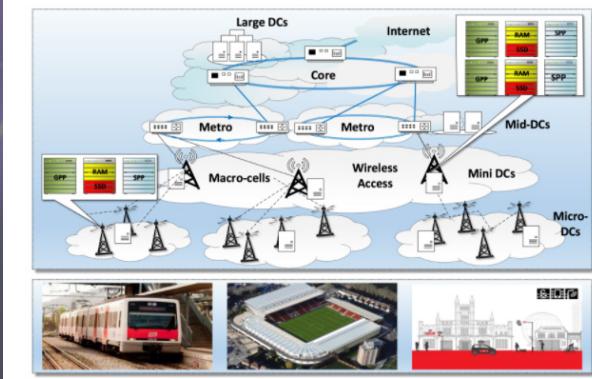


Edge-Computing & Internet of Things
for Industry4.0, Industrial IoT, LNI,
TSN, OPC-UA ...



Big Data based Threat Analysis

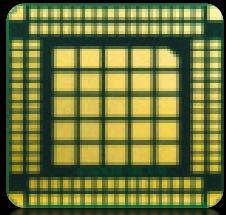
5G Programmable and Integrated
Infrastructure



Industrial Network Technologies



Home Device M2M Competence Center



Wireless Module



Smart Antenna



TCU: Telematic Control Unit

Ethernet Gateway on Automotive



Thank you.

Bring digital to every person, home, and organization for a fully connected, intelligent world.

**Copyright©2018 Huawei Technologies Co., Ltd.
All Rights Reserved.**

The information in this document may contain predictive statements including, without limitation, statements regarding the future financial and operating results, future product portfolio, new technology, etc. There are a number of factors that could cause actual results and developments to differ materially from those expressed or implied in the predictive statements. Therefore, such information is provided for reference purpose only and constitutes neither an offer nor an acceptance. Huawei may change the information at any time without notice.

