Consideration on Standardization of 5G Intelligent Operation and Management

Yanchuan Wang, Vice-chair of SG2

Brief introduction to SG2

Lead study group for

- numbering, naming, addressing, identification and routing
- service definition
- telecommunications for disaster relief/early warning, network resilience and recovery
- telecommunication management

Operational aspects of service provision and telecommunication management

- operational and management (O&M)aspects of networks
- management of telecommunication services, networks and equipment via management systems, including support for next-generation networks (NGN), cloud computing, future networks (FN), software-defined networking (SDN), IMT-2020, and the application and evolution of the telecommunication management network (TMN) framework;
- specifying interfaces to management systems
- management security

Challenge of Operation & Management brought by 5G

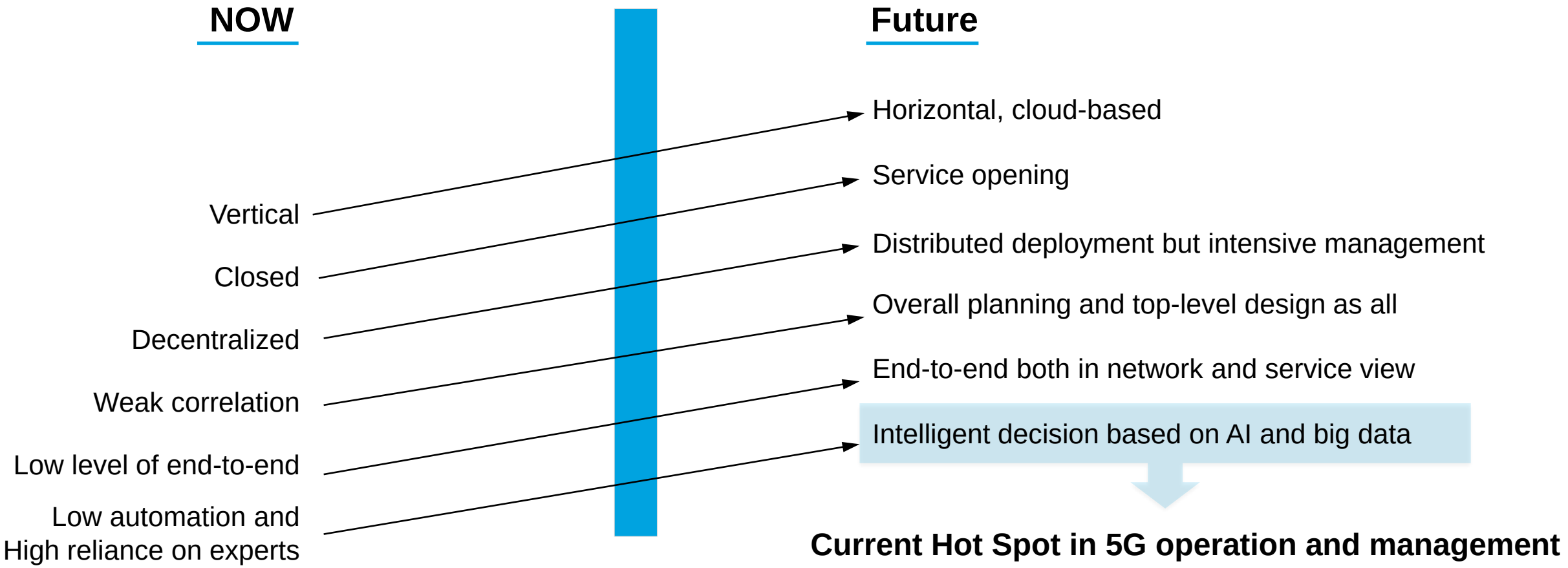
5G Features

- **Network**
  - Brand-new wireless network technology: MIMO
  - Cloud computing and virtualization applied to core network
  - User plane, control plane and data plane separate
  - SDN used as bearer network between clouds/DCs
  - Service Based Architecture(SBA)
  - Network slicing supporting multi-tenant, multi-scenario
- **Service**
  - High rate
  - Low latency
  - Large connections
  - High reliability

Challenges of Operations & Management

- How to carry out intelligent planning， O&M of 5G wireless network?
- How to provide rapid deployment, provision and troubleshooting of slices?
- How to provide service quality assurance through multi-layer and multi-domain base on cloud, SDN and NFV networks?
- How to carry out network and information security governance and protection when user plane and MEC sink to edge DC?

Transformation of Telecom Operation & Management System



Progress of 5G AI Operation & Management Standardization

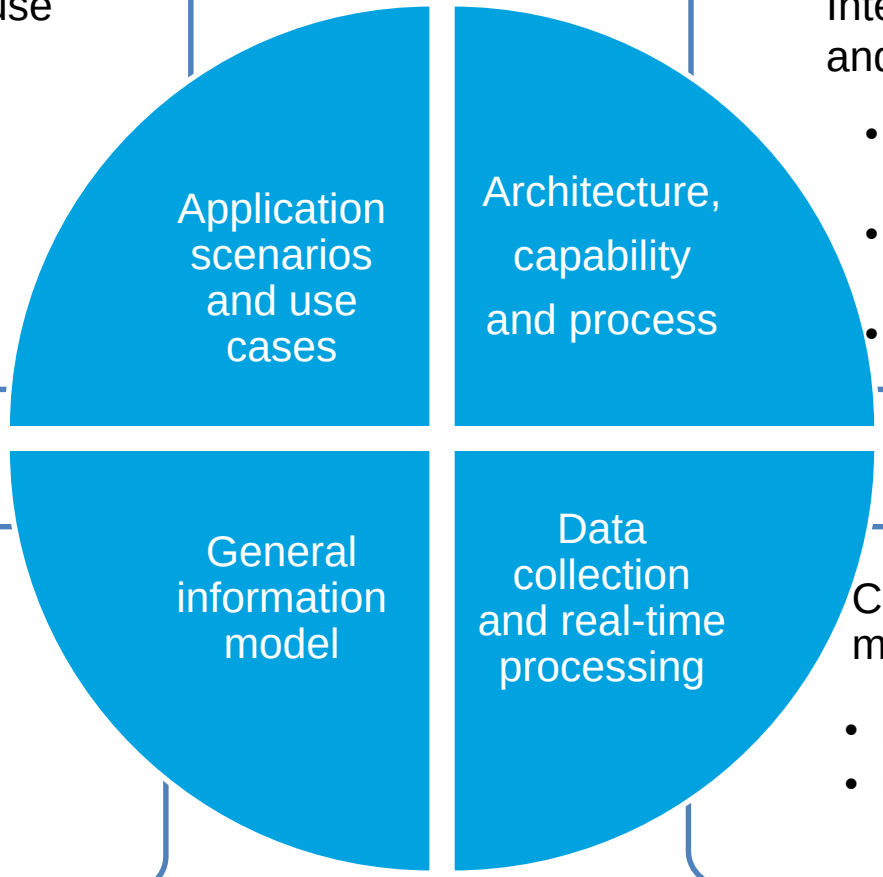
ITU-T	TMF	ETSI	3GPP
• One unified architecture • Two use cases and methods ***"ITU-T FG-ML5G-ARC5G"***	• AI maturity assessment model • AI service management architecture ***"IG1184" , " GB1003"***	• Four types of use cases ***"GR ENI 001"*** • Three types of Requirements of use cases ***"GS ENI 002"***	• Network-level AI applications No relevant standard output for operation management

- 5G all-around operation & management standards have not yet been proposed.

Proposal : AI-combined Telecom Operation & Management (AITOM)

Application scenarios and use cases where AI is used

- Efficiency improvement
- Quality assurance
- Cost management
- Security management



Intelligent O&M architecture and capability design

- Introduce AI platform into the architecture of O&M
- Open AI-combined capabilities of O&M
- Process of AI-combined O&M

General data model of telecom operation and management with AI characteristics

Collection and processing of massive data for AI components

- Data interaction interfaces
- Data processing methods

Questions for SGLA discussion

- How to organize the force in ITU-T to carry out AITOM research more effectively?