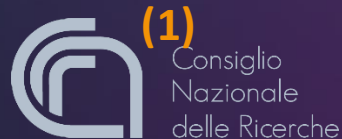


# Tecnologie e strumenti della IA abilitanti per l'Intent-Based Networking

Aldo Artigiani<sup>2</sup>; Pietro Cassarà<sup>1</sup>; Giuseppe Fioccola<sup>2</sup>; Alberto Gotta<sup>1</sup>; Riccardo Burrai<sup>3</sup>; Juri Tasselli<sup>3</sup>



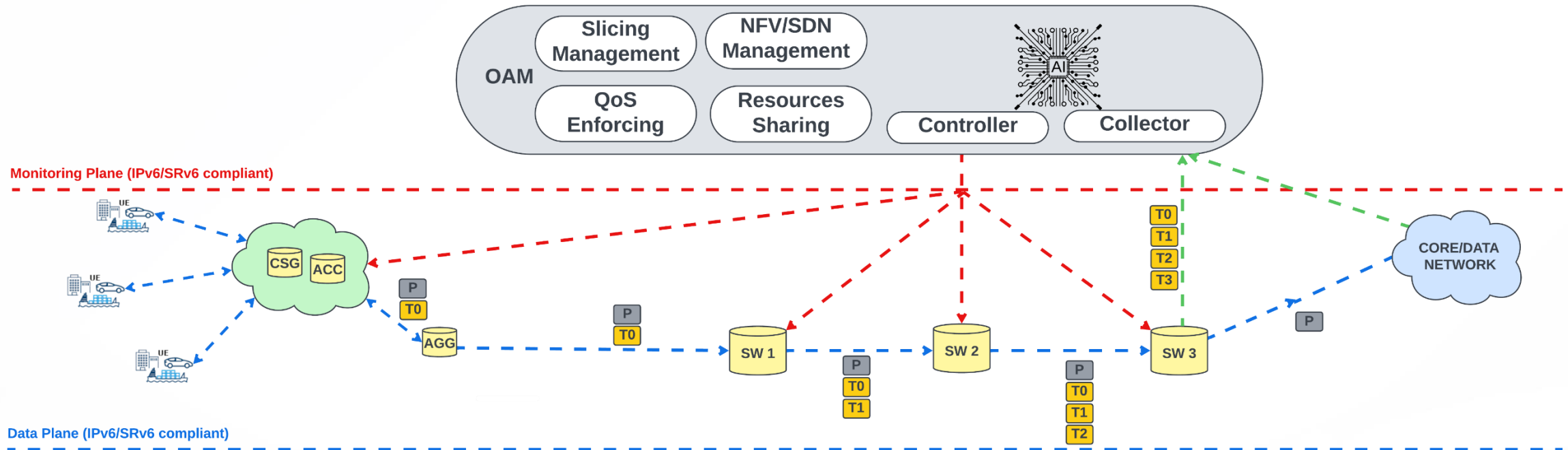
(3)

# AI for Networking & Network Intelligence

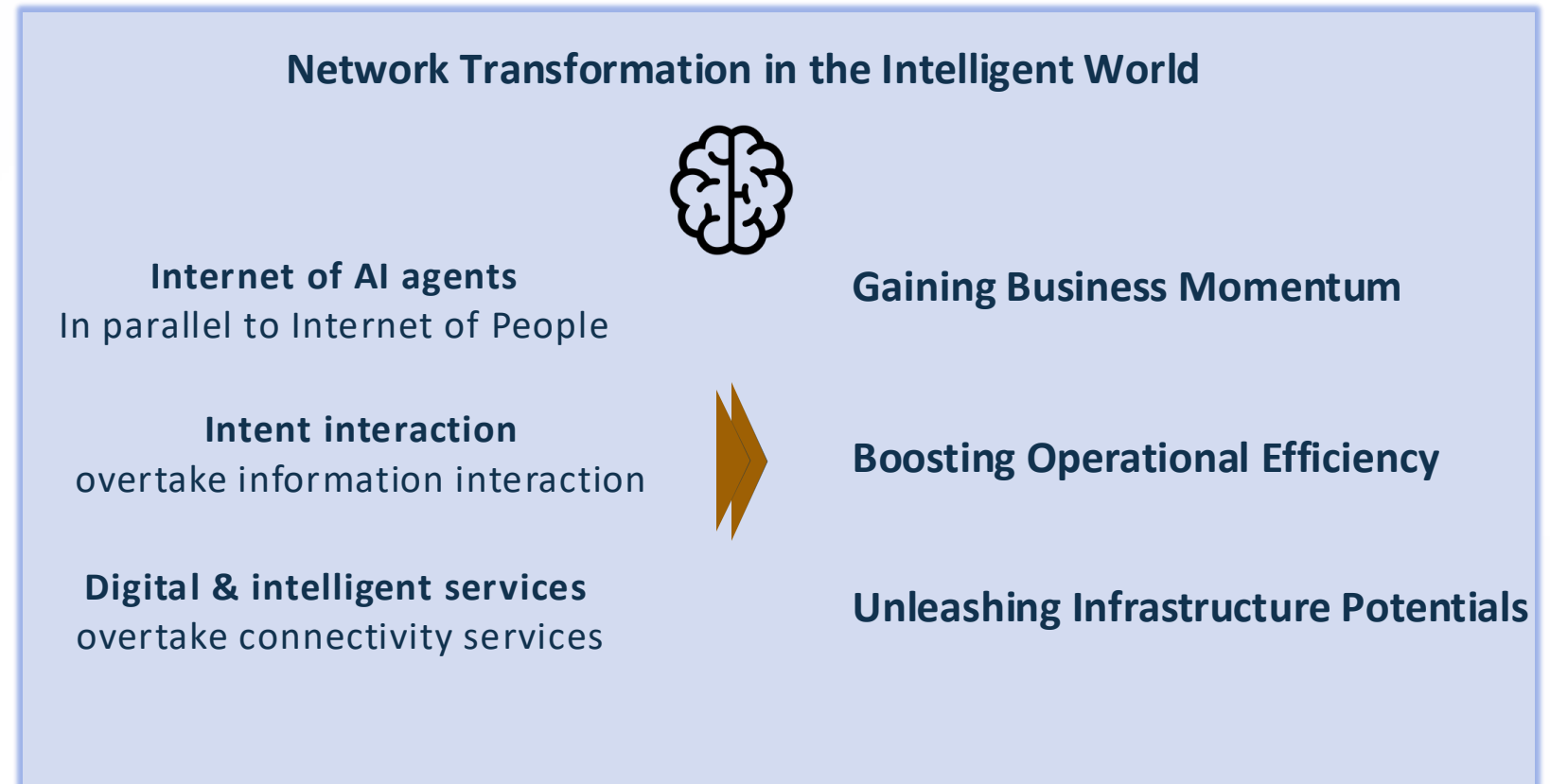
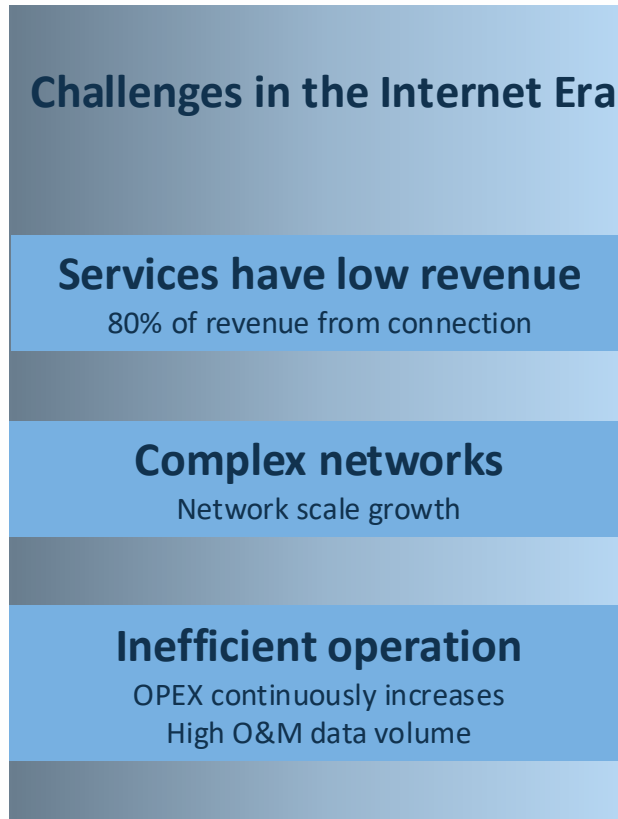
How can on-path telemetry be put at the service of AI for networking by leveraging SRv6 features?

- **Network intelligence** refers to the ensemble of technologies to inspect, in real-time, IP data packets that cross communication networks by identifying the protocols used and extracting packet content and metadata for rapid analysis of data relationships and communications patterns.

- **AI for networking** is a subset of technology platforms and processes that make faster, more accurate decisions for responding to network and systems needs more quickly, applying AI-based techniques.

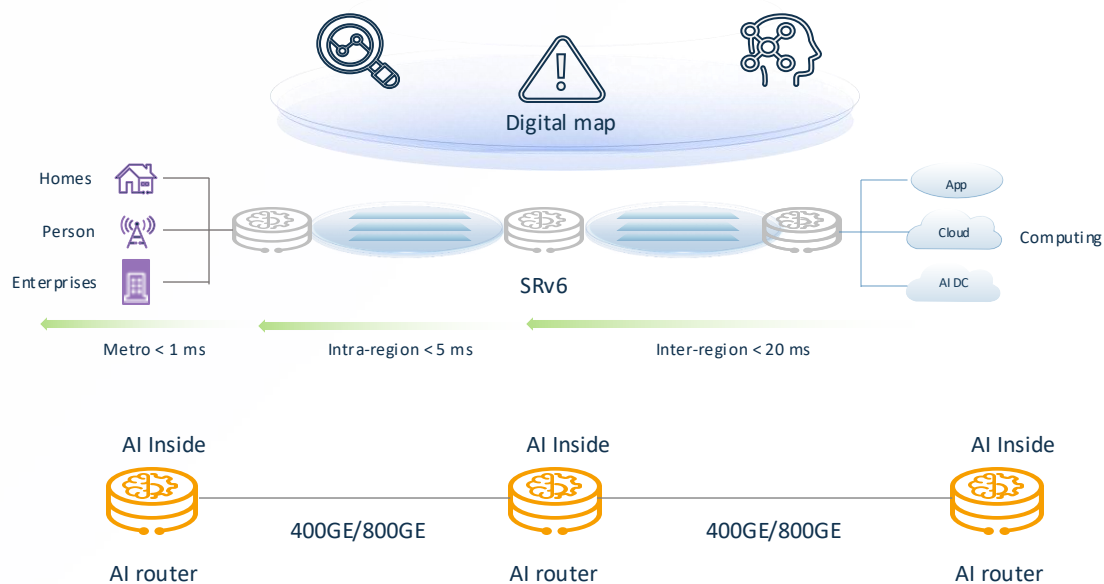


# Network Services and Operations face challenges, requiring solutions



Source: IDC reports

# AI powered E2E Network Management address challenges and provide additional benefits



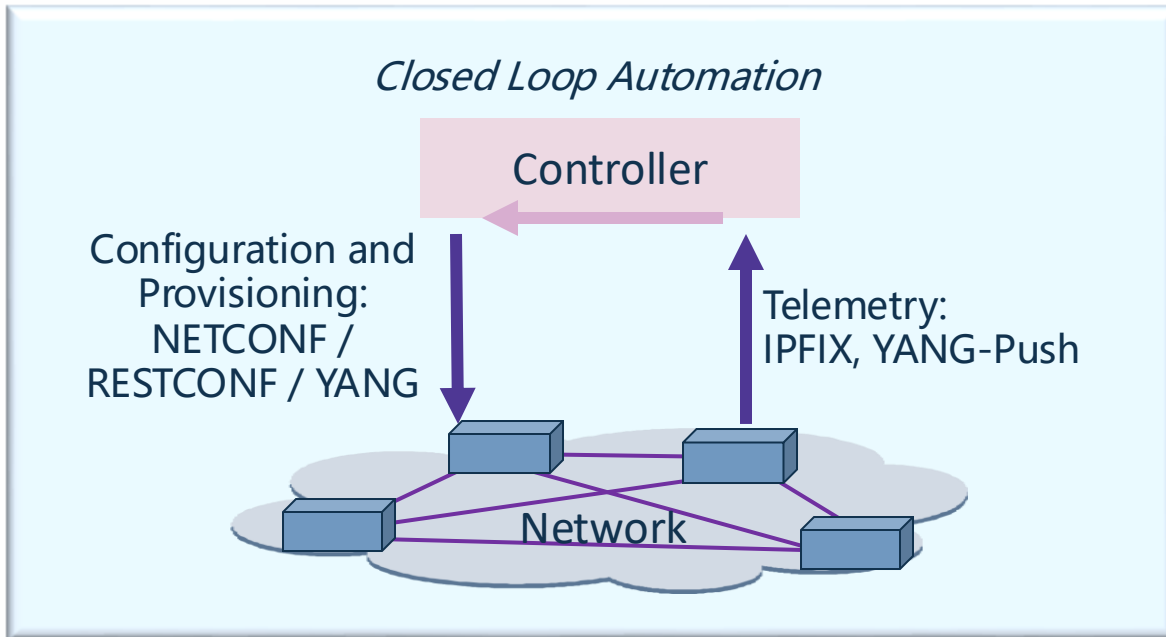
**AI new brain**  
 Online change simulation | Real-time optimization | 90% Fault self-healing

**AI new connections**  
 ms-level low latency | Ultra-high reliability | Ultra-high throughput

**AI routers**  
 Precise flow collection | Flow behavior identification | Intrinsic security protection

*Deliver Deterministic Quality of Experience to Drive New Service Growth  
 Intelligent Network Management and Predictive Operations to Accelerate ROI  
 Network Telemetry, Flow identification and optimization to Enable Business Profits*

# Intelligent network management

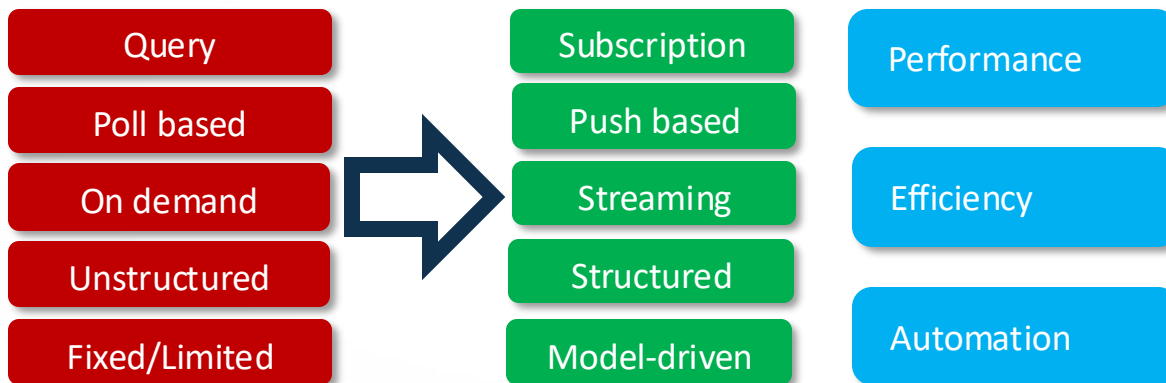


## Network Configuration and Provisioning

- NETCONF (RFC 6241) and RESTCONF (RFC 8040) allow to install, manipulate, and delete the configuration of network devices.
- YANG (RFC 7950) is a data modeling language for the definition of data sent over these network management protocols
- YANG also enables Closed Loop Automation through Model Driven Telemetry: YANG Notifications (RFC 8639, RFC 8641)

## Network Telemetry

- Instead of polling data from network devices, telemetry collectors subscribe to streaming data pushed from network devices
- Telemetry data is modeled in advance, which allows applications to configure and consume huge volume of data easily
- Network monitoring is dynamic since covers the entire network with low data sampling rate.
- When issues arise or new trends emerge, the telemetry data source can be refocused and the data rate can be boosted.

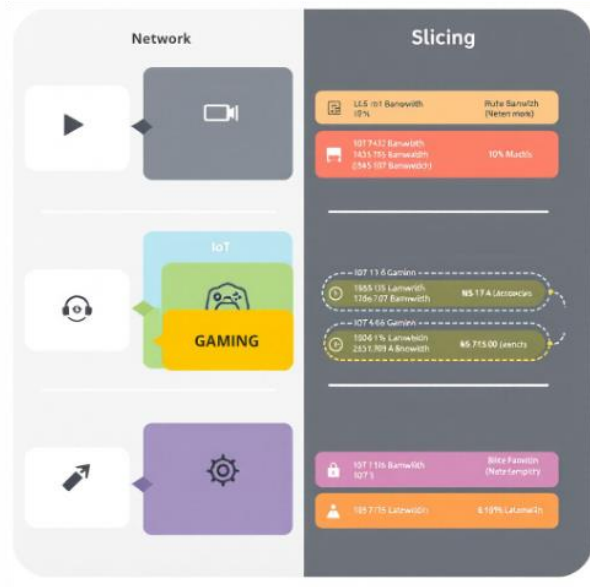


Data

# Intent-Based Networking in network architecture

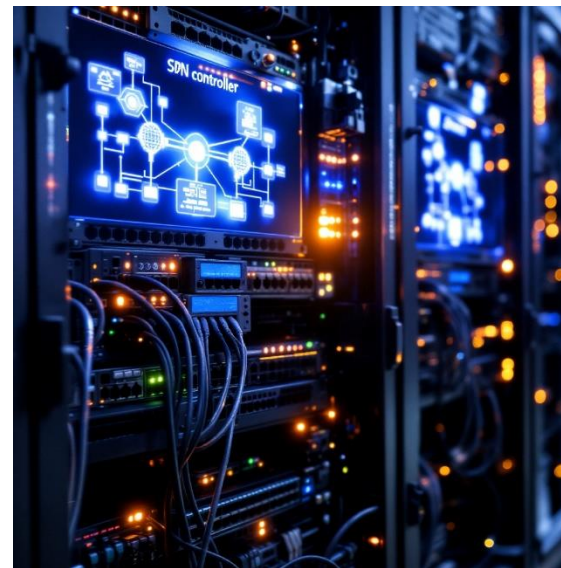
## Network Slicing

Dynamically allocates network resources based on service demand



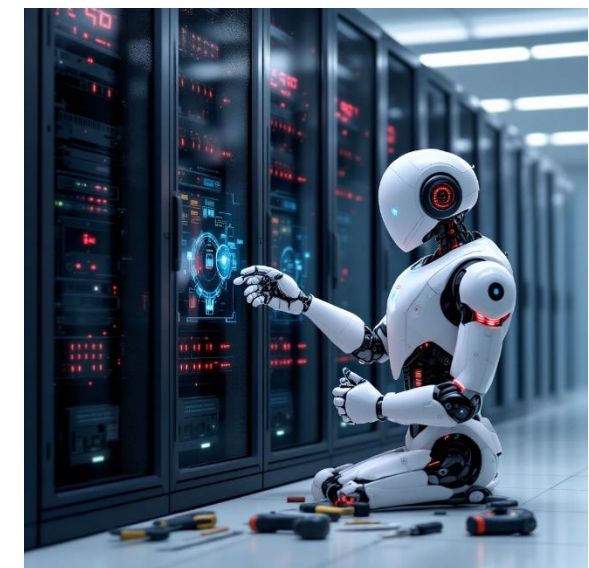
## Traffic Optimization

Ensures efficient routing and maintains QoS requirements



## Self-Healing Networks

Detects and automatically corrects network faults





**Thanks for the attention**

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