Orchestration aspects: ML for 5G

IMT-2020/5G systems -
Machine learning, management and orchestration, operational issues

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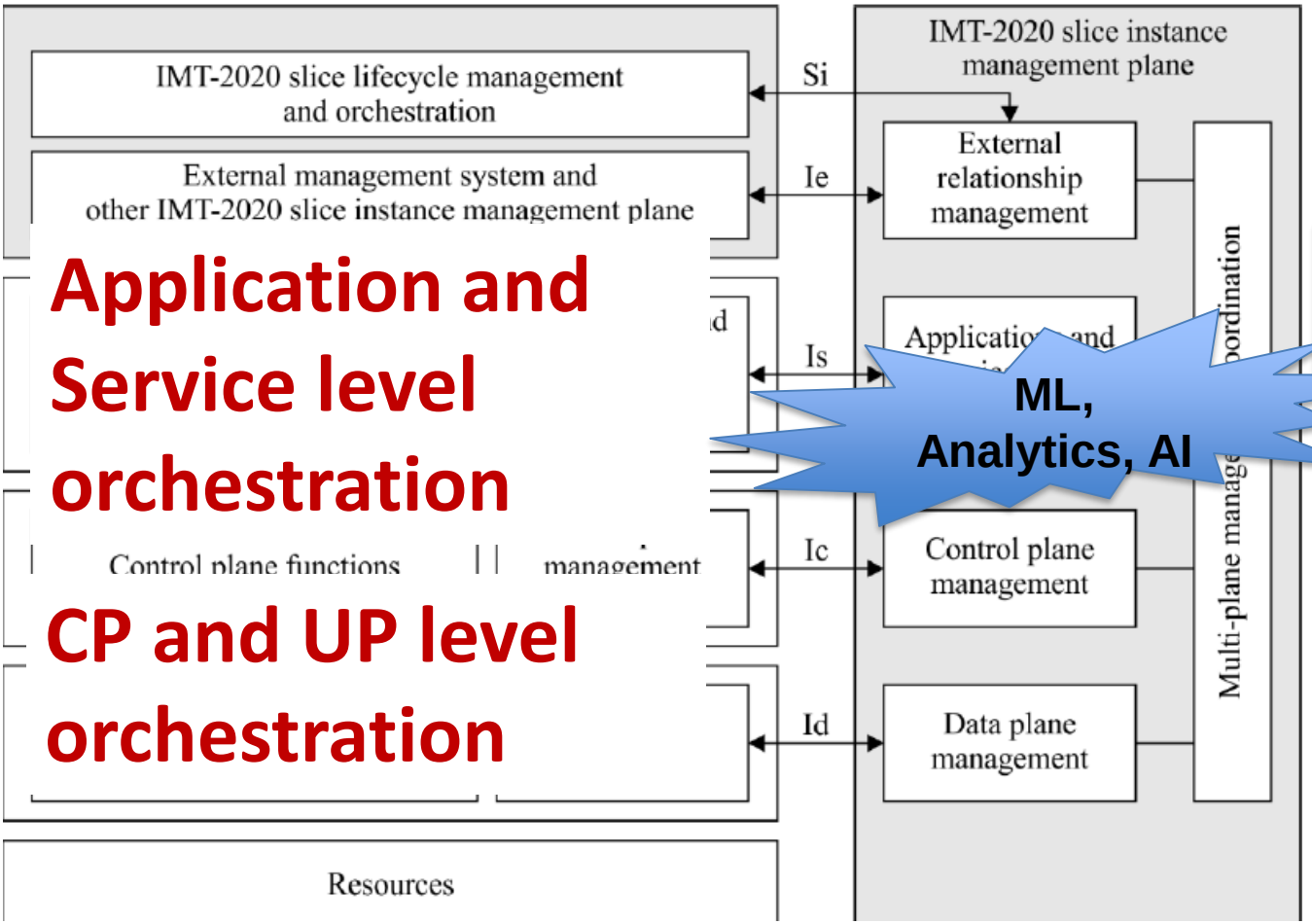
What is “orchestration aspects: ML for 5G”?



Application and Service level orchestration

CP and UP level orchestration

Orchestration of ML Functions in 5G

Application of ML in intelligent Orchestration of 5G

ML, Analytics, AI

MLFO

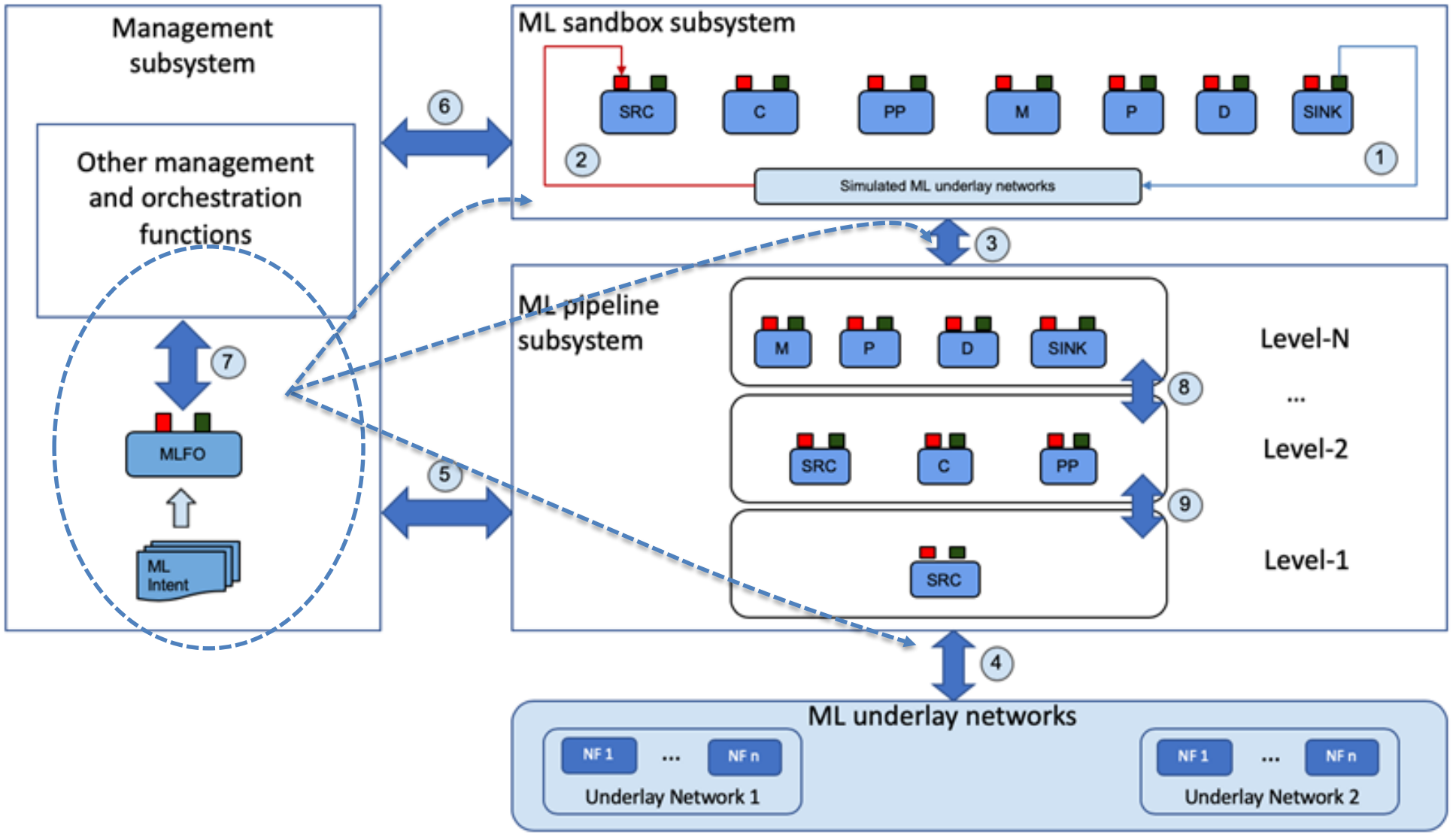
ITU-T ML Pipeline

Management plane

ML Underlay

ITU-T Y.3172

Figure from ITU-T Y.3111



Y.3172 Basic Architecture figure

Why do we need to study orchestration of ML @ ITU?

Ph	Practical life
Define how AL/ML is used in the networks of th	e.g. Service provisioning? gement? Architectures for ca
Define how da s of networks w	e.g. Data m rks? IoT?
How would re of ML in networks?	e.g. P ta? Regu e of ML? Security?
Who are the a communicatio	e.g. Algorithms? Gradients? Verticals? Cars?

MLFO has initial set of requirements for managing ML Service

MLFO selects the data models for ML services

MLFO plugin evaluates intelligence level, provisions policies for ML

MLFO manages the compression of weights and params of ML models.

ML orchestration is going to touch everything that ITU does and will do!

What would we lose if we don't study it (together)?

Opportunity to create **high-value**, using coordinated standards for deploying and managing ML in networks in an **interoperable** way, across **heterogeneous** future networks, which produces **massive data**.

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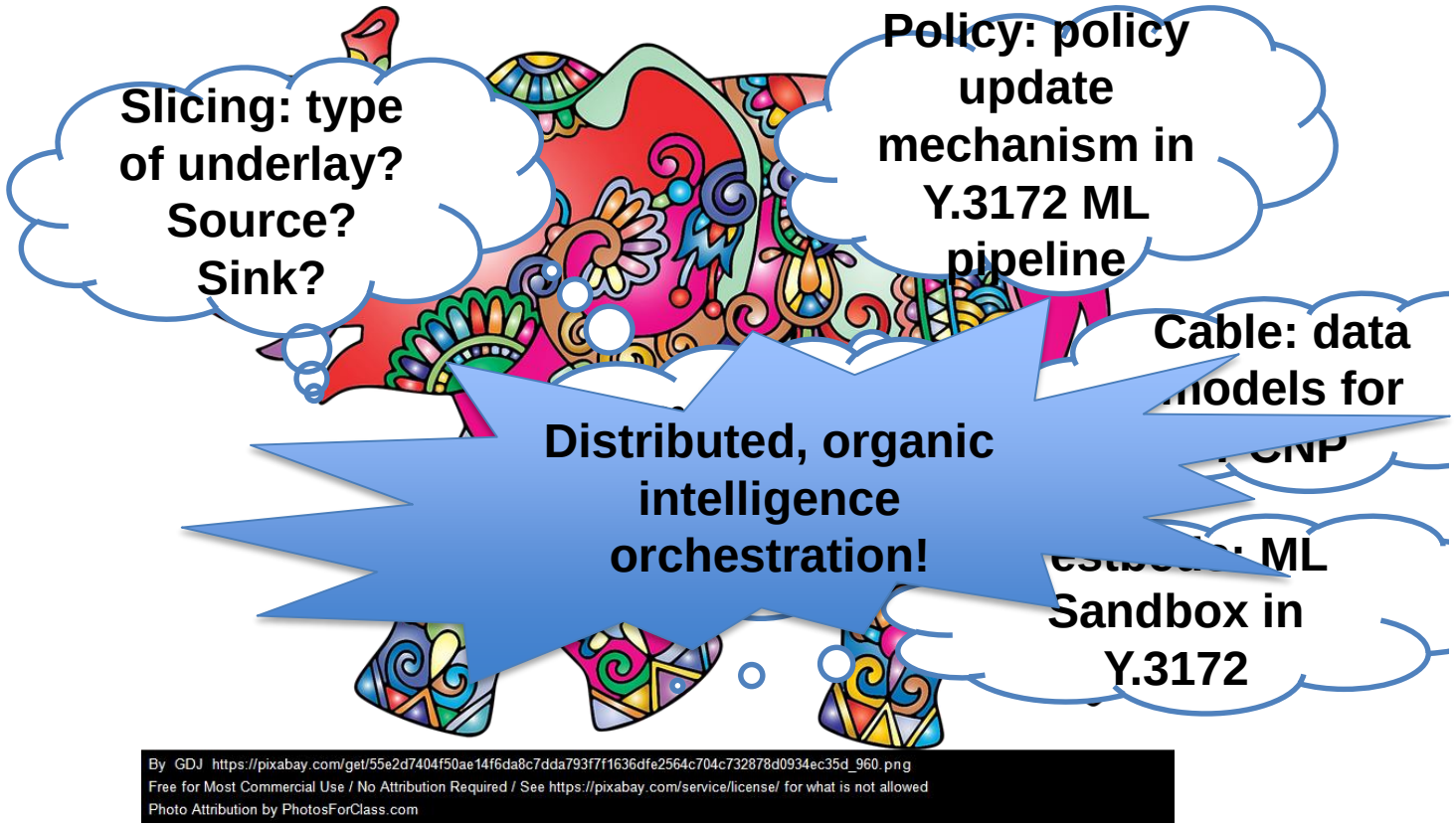
Strategic direction to be taken by ITU-T



- For each SG/FG, identify the use cases for ML.
- Collaborate with FG ML5G on how best to integrate ML.
- In the standards that we produce, have an "intelligence" handler".
- Guide/Influence opensource to use standard interfaces for ML integration.

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PCNP: Premium Cable Network Platform [ITU-T J.pcnp-fmw]

Questions fo

E.g. Depending on the data from edge, decide the source and analytics which can exploit it for user experience. This will need collaboration with SG/SDO working in this area.

- For each SG/FG … be exposed for ML? … be programmable? … for ML-aware XYZ?
- … is "opportunism"?
- … on which ML solution is best … those use cases?
- … is "match-making"?
- … over capabilities for ML?

E.g. Batch and Real time analytics from the network using corresponding models selected by MLFO. This will need collaboration with SG/SDO working in this area.

E.g. Data abstraction from the network based on the data models used in analytics.

Now, can we cut it granular and auto-negotiate those interfaces?

Orchestration of Intelligence = Orchestration of interoperability!