



LFN Developer & Testing Forum

# Intent Framework and Intent Modeling

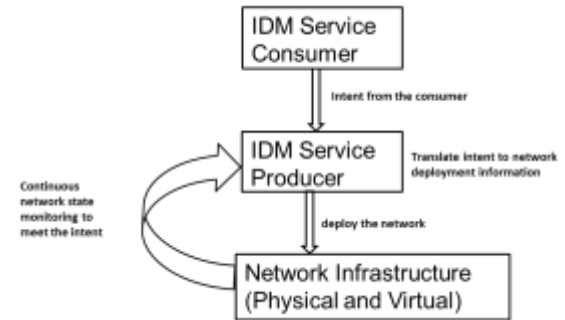
Yaoguang Wang (Huawei)

# Agenda

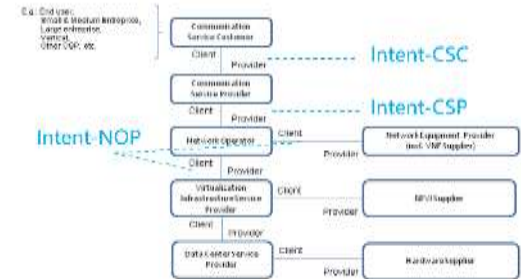
- Background
  - 3GPP IDMS (Intent driven management service)
  - Guilin Intent POC
- Intent Framework Architecture
- PoC use case in Honolulu
- Roadmap

# Background: 3GPP IDMS

- Intent technology can reduce the complexity of management without getting into the intricate detail of the underlying network infrastructure, and contribute to efficient network management.
- “Intent” in SDO, 3GPP 28.812, Intent driven Management Service (Intent driven MnS).
- **Intent-CSC:** enables Communication Service Consumer (CSC) to provide what CSC would like to do for the communication service management without knowing how to do.
- **Intent-CSP:** enables Communication Service provider (CSP) to express an intent about what CSP would like to achieve in the network management without knowing how to do.
- **Intent-NOP:** enables Network Operator (NOP) to provide what NOP would like to do for the network resource management without knowing how to do.



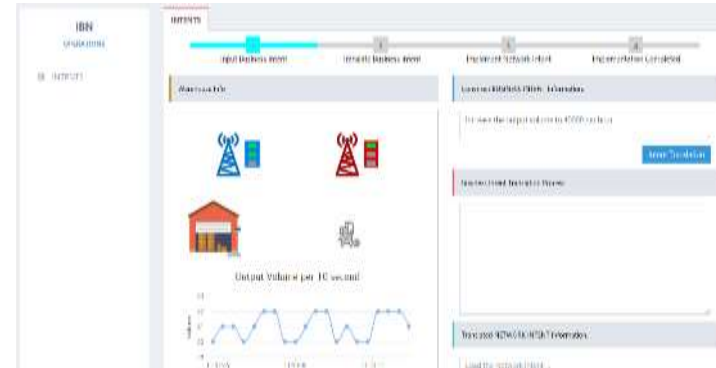
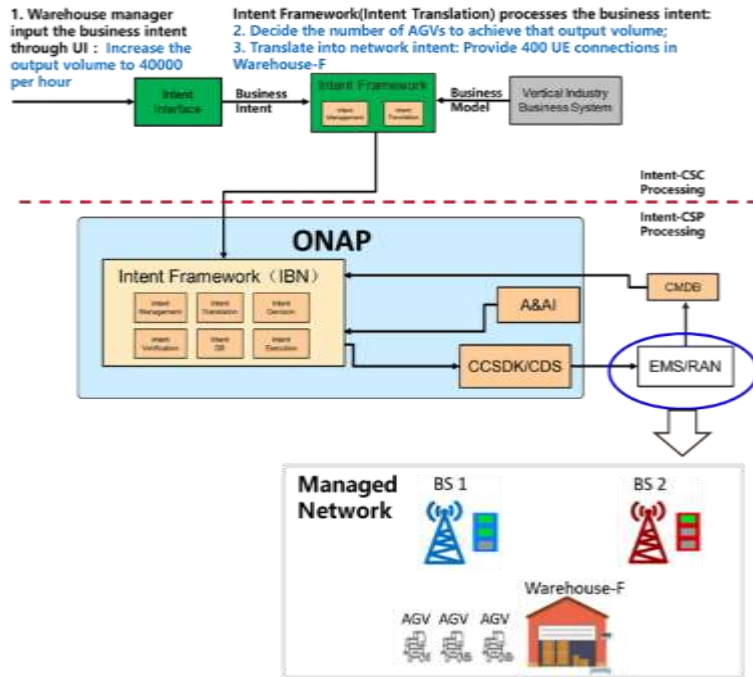
An example of using Intent driven management service for network provisioning



Concept for utilization of intent [3GPP 28.812]

# Background: Guilin IBN POC

- Intent technology was first proposed into ONAP as a IBN POC in Guilin release.
- Guilin IBN PoC: A vertical industry use case (Smart Warehouse Management)

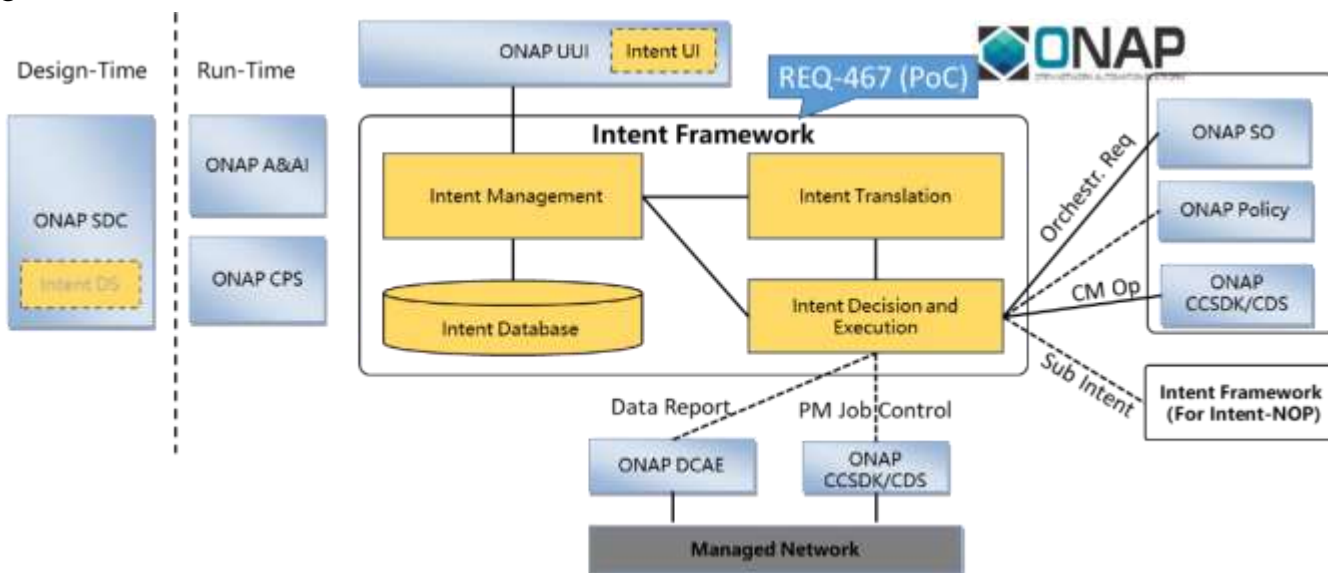


Guilin Intent PoC summary:

1. Intent Technology can help vertical industry manage 5G network to satisfy their business needs:
  - Intent Framework can do intent management at different levels, Intent-CSC and Intent-CSP level
  - Intent framework translate network intent into the corresponding ONAP operations
2. Reuse the existing components (such as NRM restful executor in CCSDK/CDS and provisioning MnS simulator).
3. Model-driven (CDS cba and A&AI data model)

# Intent Framework Architecture

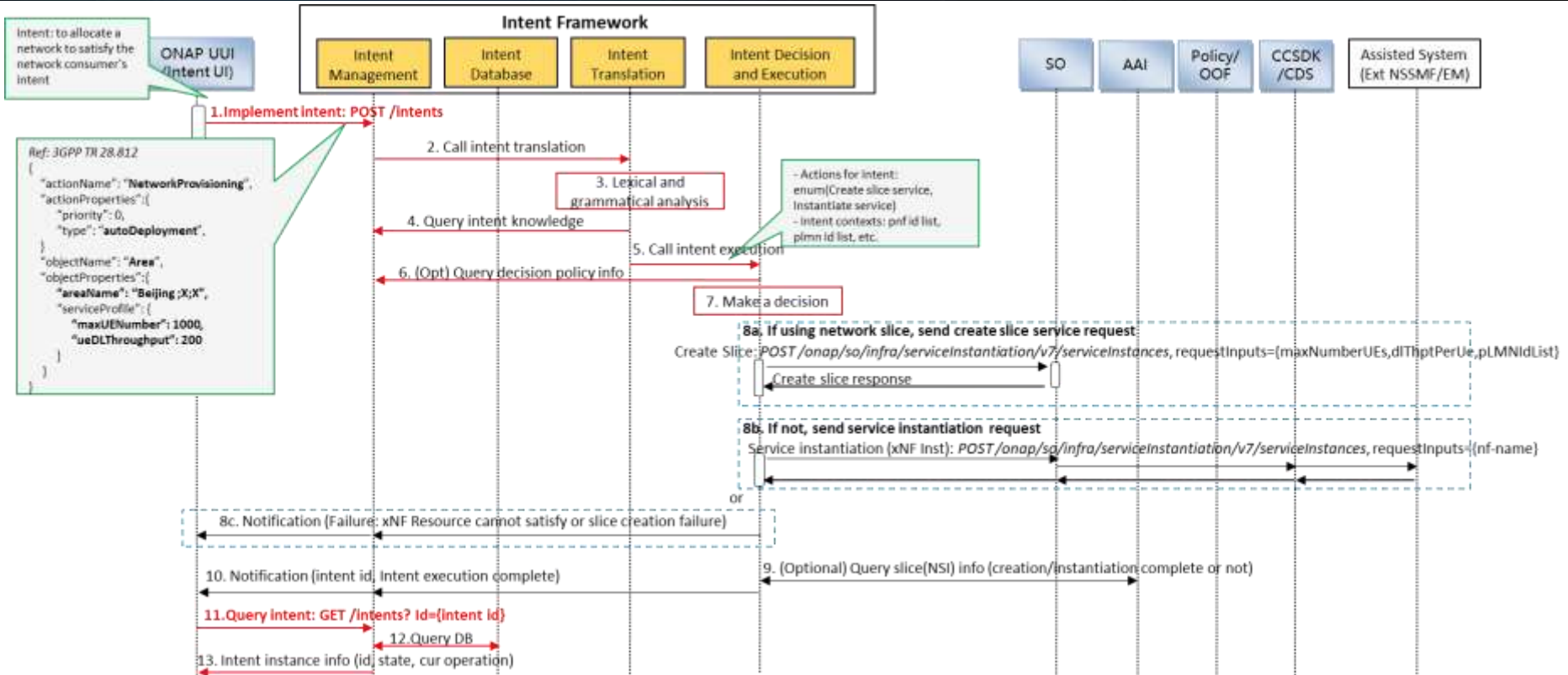
- Intent framework is a system that helps to implement and operate networks that can improve network availability and agility.
- It takes a high-level business goal (intent) as input, converts it to the necessary network configurations and applies the network changes via network automation and/or network orchestration. Continuously monitoring the status of the network under control, the system validates in real time that the intent is being met, and can take corrective actions when desired intent is not met.



# Functional blocks of Intent Framework

- Intent Framework
  - Intent Management
    - Providing NBI for consumers, including intent schema and instance management in a general way
  - Intent Translation
    - Translate high-level of abstraction to a more concrete form in order to be validated and processed.
    - The system takes a higher-level business goal (what) as input from end users and converts it to the necessary network configuration or orchestration request (how).
  - Intent Decision and Execution
    - Decide which, if any, candidate solution shall be executed in response to a request by another managed entity for a set of governance actions.
    - Execute one of translated intent solution by sending request to other component, such as SO, CDS, Policy, or external low-level intent system (intent framework).
  - Intent Database
    - Store intent schema, intent instance and intent knowledge

# PoC use case: Intent driven Network Provisioning



Note: The MnS producer translates the intent from the MnS consumer to network deployment related requirements (e.g. using network slice or not, network topologies, etc.) and configurations.

# Offered and Consumed APIs in the PoC

## Offered APIs by Intent Framework

Implement intent	POST /intents Request Body: <code>{"immediate": true, "expression": "xx"}</code> Response: <code>{"id": "intent id"}</code>
Query intent	GET /intents?id={intent id} Response: jsonObject, e.g. <code>{"id": "intent id", "state": "active", "createTime": "xx", "expression": "xx", "fulfilmentInfo": "FULFILLED", "operationList": "CreateSliceService"}</code>

## Consumed APIs by Intent Framework

Create slice service	POST /onap/so/infra/serviceInstantiation/v7/serviceInstances Request Body: jsonObject, <code>{"requestParameters": {...}, "requestInputs": {"maxNumberUEs": 100, "pLMNIDList": "xx", "coverageAreaList": "xx"}}</code>
Service instantiation	POST /onap/so/infra/serviceInstantiation/v7/serviceInstances Request Body: jsonObject, <code>{"requestParameters": {"userParams": [{"resources": {"pnfs": [{"instanceName": {"nf_instance_name"}}]}}}}</code>



# Roadmap

Rel	Feature	Link
Guilin	IBN PoC: A vertical industry use case 1. Intent management at different levels, Intent-CSC and Intent-CSP level. 2. Intent execution through configuration management operations via CDS.	<a href="https://wiki.onap.org/display/DW/Intent-Based+Network">https://wiki.onap.org/display/DW/Intent-Based+Network</a>
Honolulu	PoC: Intent Framework and Intent Modeling 1. Intent Framework architecture definition <ul style="list-style-type: none"><li>• Functional blocks and interfaces between them</li><li>• Initial Implementation as a separate and external component with multiple micro services.</li></ul> 2.External interface to other existing ONAP Components <ul style="list-style-type: none"><li>• UUI, SO, CDS, AAI/CPS, etc</li></ul> 3.Discussion of general Intent modeling, and giving some concrete intent data model for specific use cases <ul style="list-style-type: none"><li>• Intent-CSP and Intent-NOP from 3GPP 28.812</li><li>• Intent driven Energy Saving, etc.</li></ul> 4.Demo of Intent Framework: Intent driven Network Provisioning	<a href="https://wiki.onap.org/display/DW/Support+for+Intent+Framework+and+Intent+Modeling">https://wiki.onap.org/display/DW/Support+for+Intent+Framework+and+Intent+Modeling</a>
Istanbul+	1. Intent UI and integration with Intent Framework 2. Intent schema management 3. Intent modeling enhancement with more use cases	TBD



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