ONAP OOF – Casablanca+ Discussion at ONS
03/26/2018, Los Angeles, CA

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# Agenda

- Group discussion on Use Case Requirements - 5G, Edge Computing, VOLTE   - 20 min.

- Architectural Direction for Casablanca and beyond   - 10 min.
    - Evolve to fully Model-driven
    - Interaction with key components A&AI, Multi Cloud, Policy etc.
    - @Scale implementation for large distributed clouds

ONAP Optimization Service Design Framework – Beijing Release

- Optimization Service Design Framework (OSDF)
  - Framework for easily creating model- and policy-driven optimization applications
  - Declarative modeling of models, data templates, and configuration (based on MiniZinc)
  - Lifecycle management (including execution environment) for optimization applications
  - Adaptors to ONAP components (Policy, A&AI, Multi Cloud, etc.); can onboard custom data adapters
  - Support for external optimizers (e.g. supporting HAS) via declarative configuration
  - Building blocks, tutorials, and sand-box containers with demo applications

- HAS use case with vCPE
  - HPA policy integration
  - Integration with Multi Cloud metrics

- Change Management Scheduling Optimization (CMSO)
  - Model driven optimization with Minizinc
  - Demonstration with simulated policies and data
  - Aligned to support the CMSO use case

Drive Service Agility through Declarative Modelling

ONAP Optimization Service Design Framework – Beijing Release (Contd.)
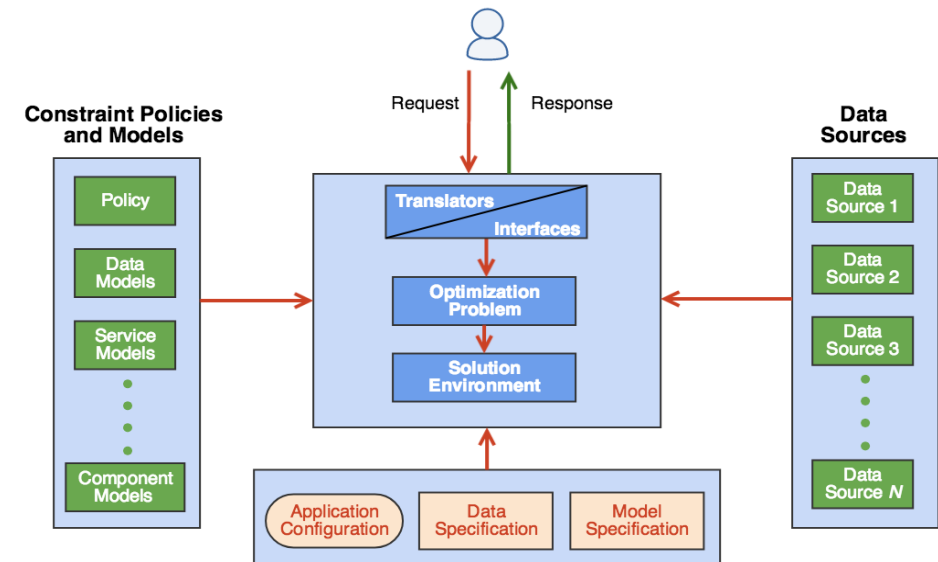
- Stretch goals for R2 (model driven example applications)
  - Model driven implementation of vDNS and vFW use cases
  - Model driven implementation of 5G Load-Aware Placement/Scheduling
  - Notebooks for interactive visualization/analysis and experimenting
  - Visualization and analysis of cloud region utilization
  - Visualization of schedules provided by the CMSO app

- A cloud native containerized app with framework and demo applications
  - Interactive web interface for creating/modifying applications (MiniZinc and various solvers)
  - Visualization interfaces
  - Notebook infrastructure (JupyterLab)

OOF Architectural Direction – Casablanca & Beyond

Design - Model-Driven Transition

Beijing/ Casablanca

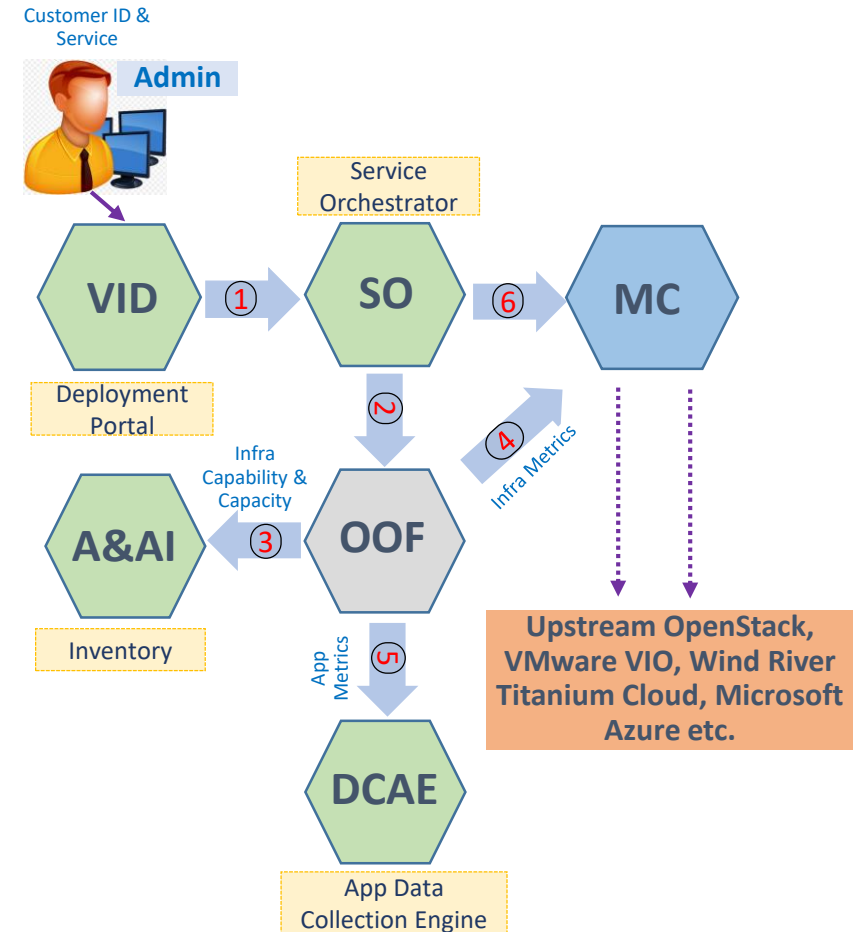- Map Policy Model (TOSCA) to Optimization (Minizinc) Model

Casablanca

- Translate Policy Model to Optimization Model

Casablanca+

- Embed Optimization Model in TOSCA Model

- **Multiple solution choices;** Important due to the time lag in @scale infra/application metric collection
- **Joint Constraints** across cloud regions @ease; Important for 5G/Edge Computing Apps
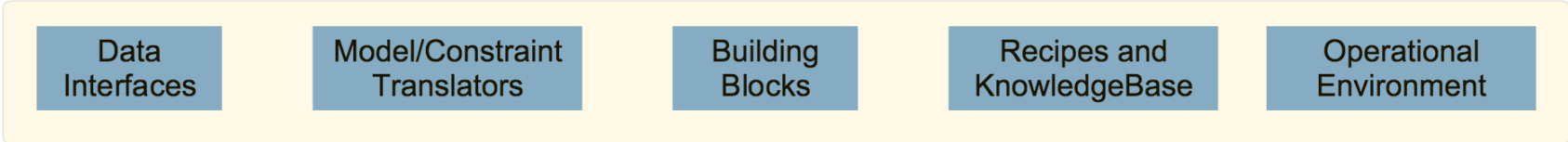- **Masking Mathematical complexity** of Optimization algorithms through Modelling

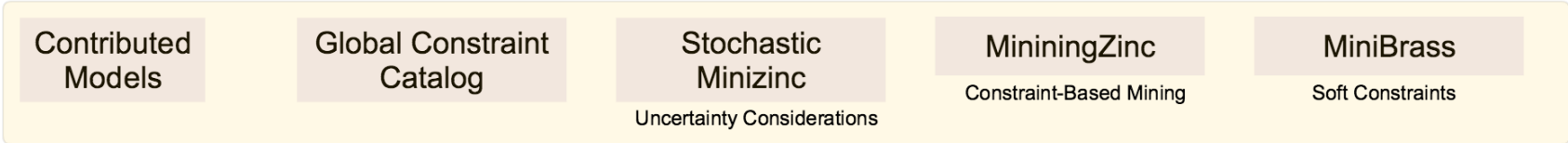## Deployment/Operation - @scale Edge Cloud Support

Customer ID & Service

Admin

VID — ① → SO — ⑥ → MC

Service Orchestrator

Deployment Portal

②

④ Infra Metrics

Infra Capability & Capacity

A&AI ← ③ — OOF

Inventory

App Metrics ⑤

Upstream OpenStack, VMware VIO, Wind River Titanium Cloud, Microsoft Azure etc.

DCAE

App Data Collection Engine

- **Infra/Application Aggregate Metrics @scale through DMaaP**
- **Near-real-time solutions for Edge Clouds**

ONAP
OPEN NETWORK AUTOMATION PLATFORM

Model-Driven Optimization Framework based on Minizinc