



OPTIMUS

BRINGING SIMPLICITY TO A
COMPLEX WORLD

Multi-Hypothesis Domain Optimization in Integrated
Mesh Network (simple)

P R O X I M A

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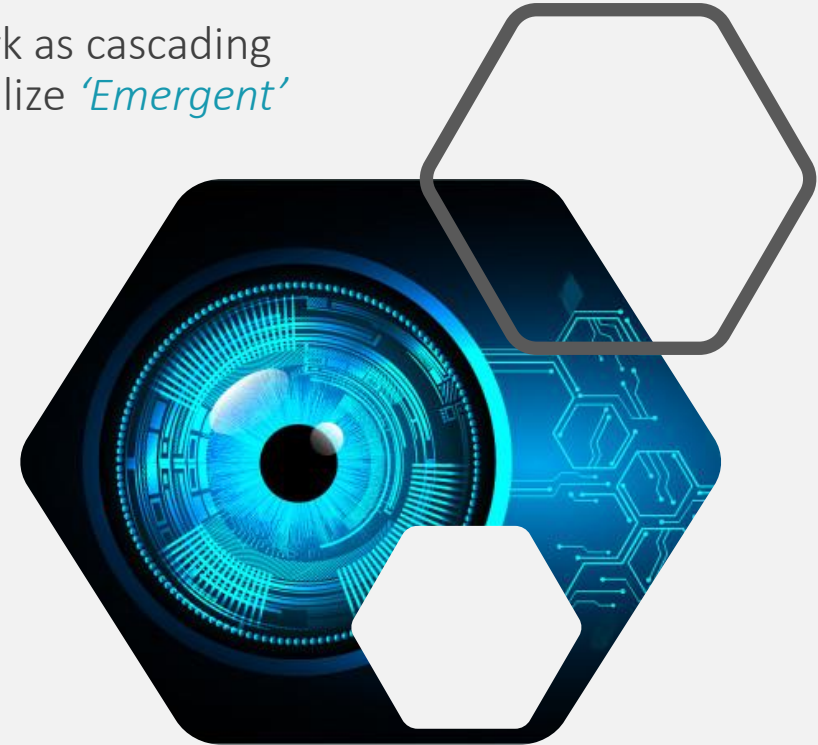
A **construct** for developing a Mesh Networked (system-of-systems) of integrating *Cells*, where each Cell is a local optimization solver of multiple hypothesis/solutions.

The resulting dynamic mesh network will:

- ✓ Identifying superior localized Domain solutions
- ✓ Increase the entire eco-system performance within Mesh Network as cascading superior solutions re-enforce each other through the chain to realize '*Emergent*' behaviors

Additional Benefits:

- Reduce complex systems into manageable microservices
- Enable 'Plug-and-Play' environment to compare similar solution providers and efficiently *add or replace* components
- Discover '*positive emergent behavior*' when networking and promoting superior local solutions throughout the network chain



The background features a dark blue night sky with the Milky Way galaxy visible. Below the sky is a silhouette of a mountain range reflected in a body of water. Several hexagonal shapes are overlaid on the left side; some are solid dark blue, while one is an outline. A large, dark grey rounded rectangle on the right contains the title and scenario text.

OPTIMUS PRIME

USE CASE SCENARIO 1:

Single Domain

Space Domain Awareness (SDA)
Architecture w/ Ensemble Catalog

The background features a collage of hexagonal shapes. Some are solid dark blue, others are white outlines, and some contain satellite imagery of Earth's surface. A large, dark grey rectangular box is positioned in the center-left, containing the title and subtitle. The overall aesthetic is high-tech and futuristic.

OPTIMUS PRIME

USE CASE SCENARIO 2:
Electro-Optical Image Processing
Optimization

OPTIMUS PRIME

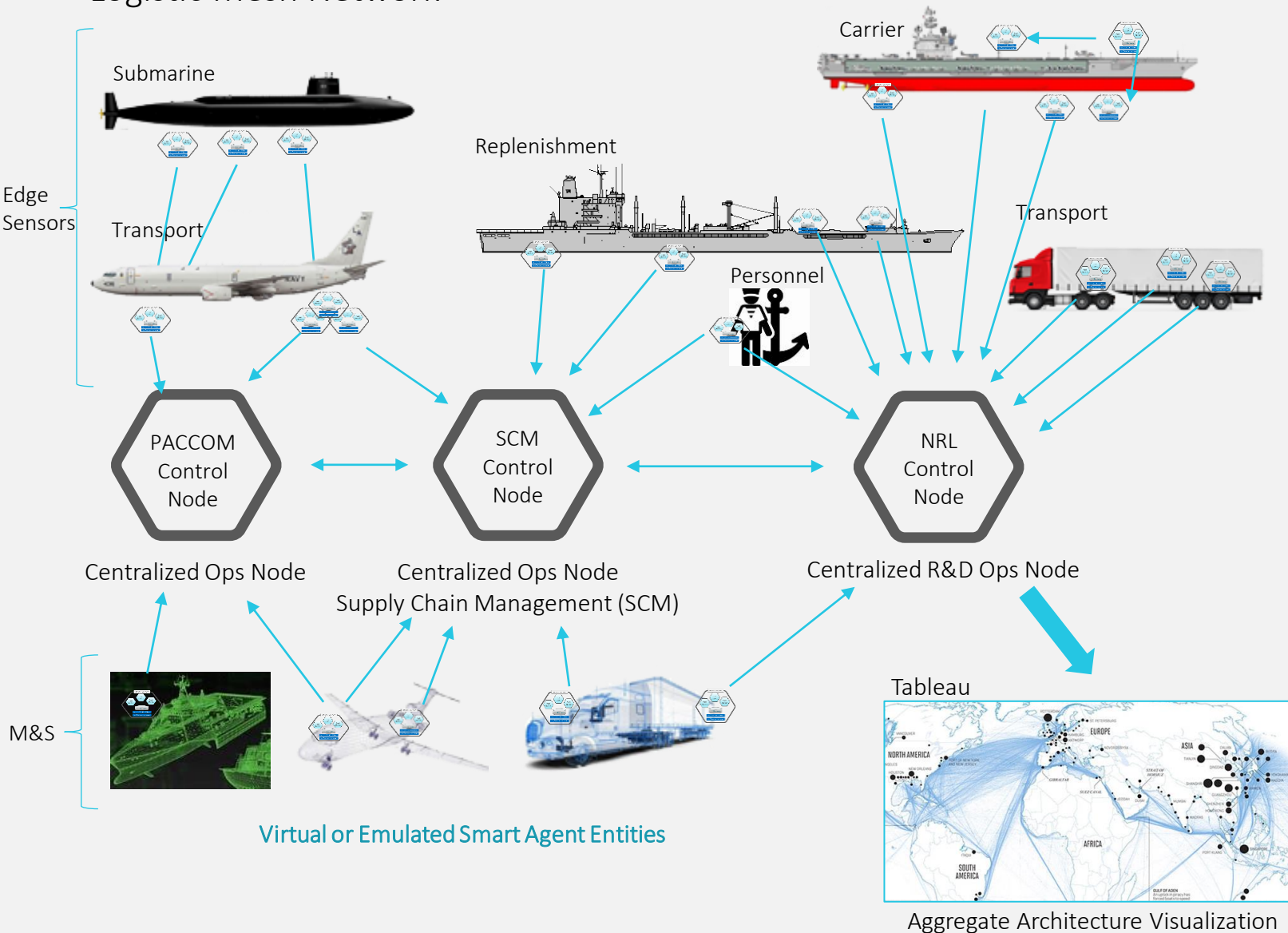
USE CASE SCENARIO 3:

Naval Logistics Supply Chain and
COVID-19 Monitoring



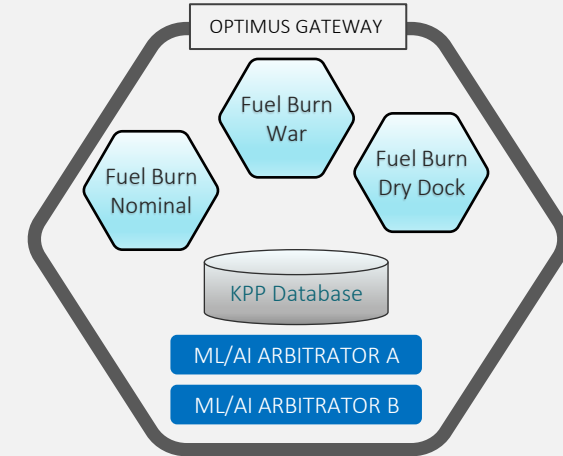
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Logistic Mesh Network



OPTIMUS: SINGLE CELL

Example: Sub Fuel Monitor

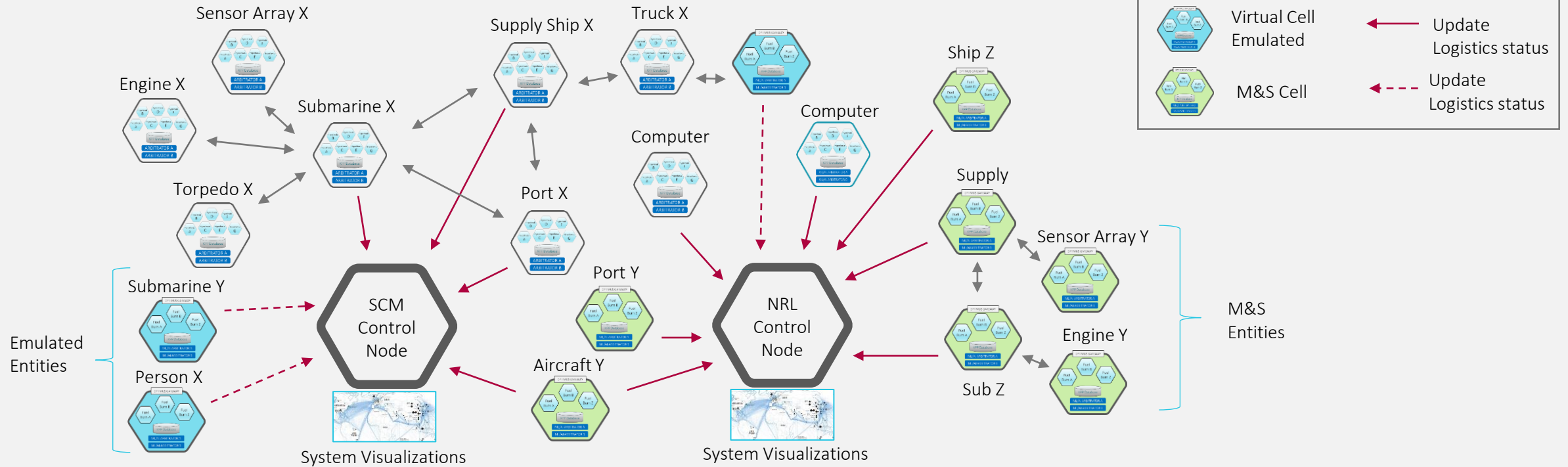


Optimus Cells

- Encapsulated microservices (Linux, Win, iOS)
- Customized for Entity-Type monitoring
- Aggregate sensor data at Entity (sub, transport, etc)
- Multiple Models embedded for Entity
 - Models available for different environmental conditions ([peace](#), [wartime](#), [pandemic](#))
- ML/AI algorithms profiling best match to data
- Periodically send Heartbeat and Metric Data back to registered Control Node (when comms available)
- Continue Profiling even when temporarily disconnected from network
- Trained ML/AI Arbitrators predict future Digital Logistics consumption needs based on 'behavior' evident in historical pattern or environment

O P T I M U S

Mesh Network





- ✓ Complex architecture can be constructed of multitude *simple* Cells
- ✓ Mix-and-Match Real and M&S (virtual) cells in same network
- ✓ If Entity drops connection, “**Emulated**” **copy instantiated** (with historic profile) until Real Cell re-connects. (any drop in connection triggers warning to ‘Control Node’ to spawn a copy for ‘continuity of demand signal’)


Virtual Entities
‘reconstitute/repair’
so SCM Control
continues to perceive
Logistics demand
signal




Thank You

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OPTIMUS: MESH NETWORK

