

**Regional Standardization Forum**  
Emerging Economic,  
Regulatory and Policy Trends  
in a Fast-Changing Digital World

Xi'an, China, 27 August 2018

## Service Delivery Framework over a mesh of Interconnected CSPs

*Shahar Steiff*

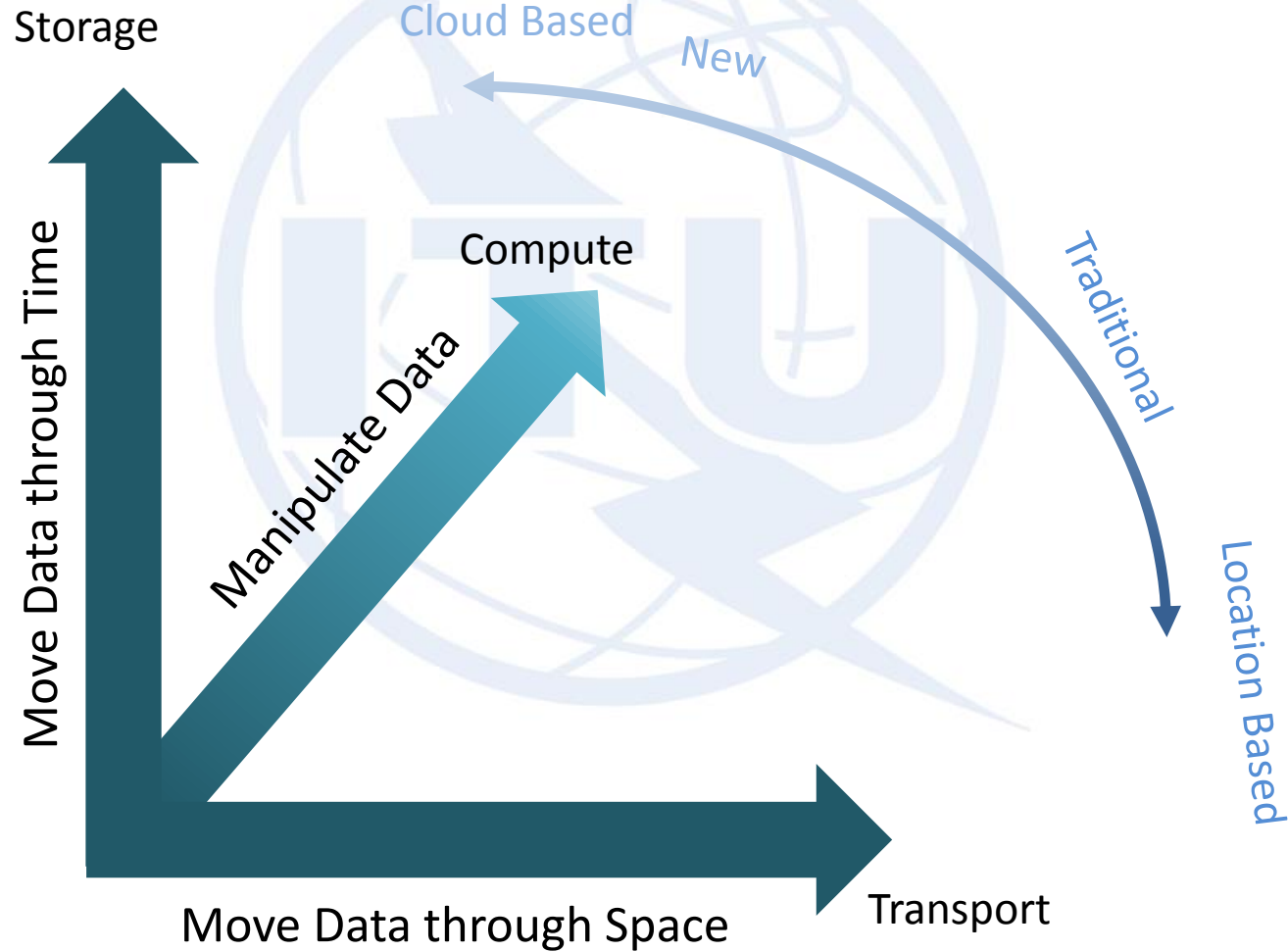
*AVP New Technology, PCCW Global, Hong Kong SAR*



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## From Telco to CSP

**C**ommunications  
**S**ervice  
**P**rovider



## CSP Assets

Communications  
Service  
Provider

### Physical Assets

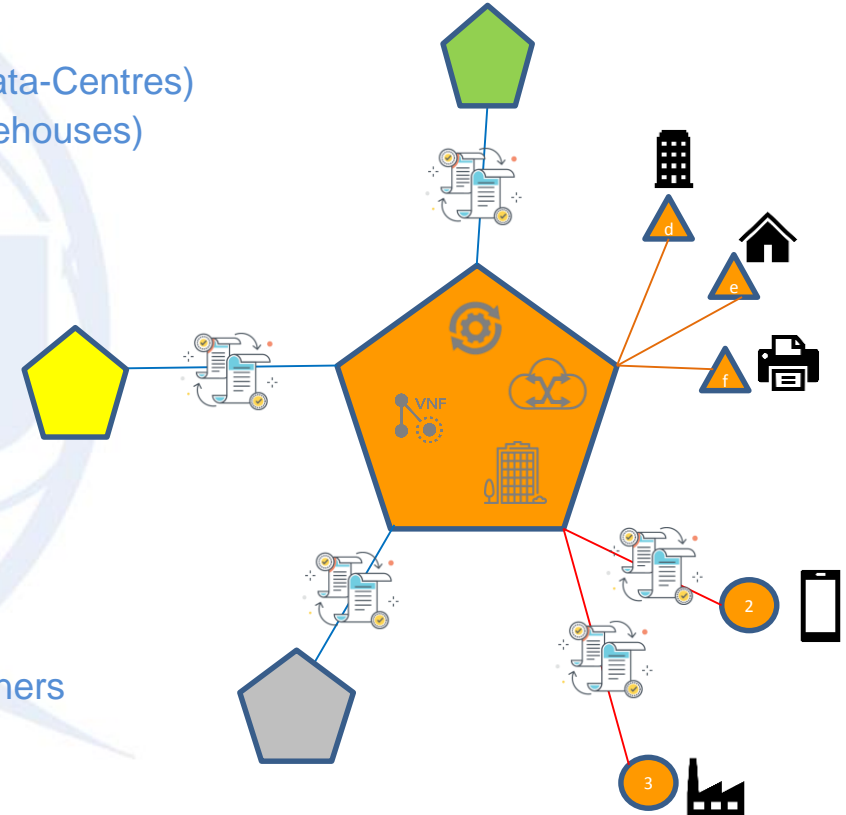
- **Nodes:**
  - UNIs (Enterprise, Government, Domestic, Telehouses, Data-Centres)
  - Switching and Routing Devices (PoPs, Data-Centres, Telehouses)
  - Compute Devices (CPE, Network Edge, Data-Centres).
  - Storage Devices (Data-Centres)
- **Connectivity:**
  - Node to Node, Node to ENNI, ENNI to ENNI

### Partner Relationship Assets:

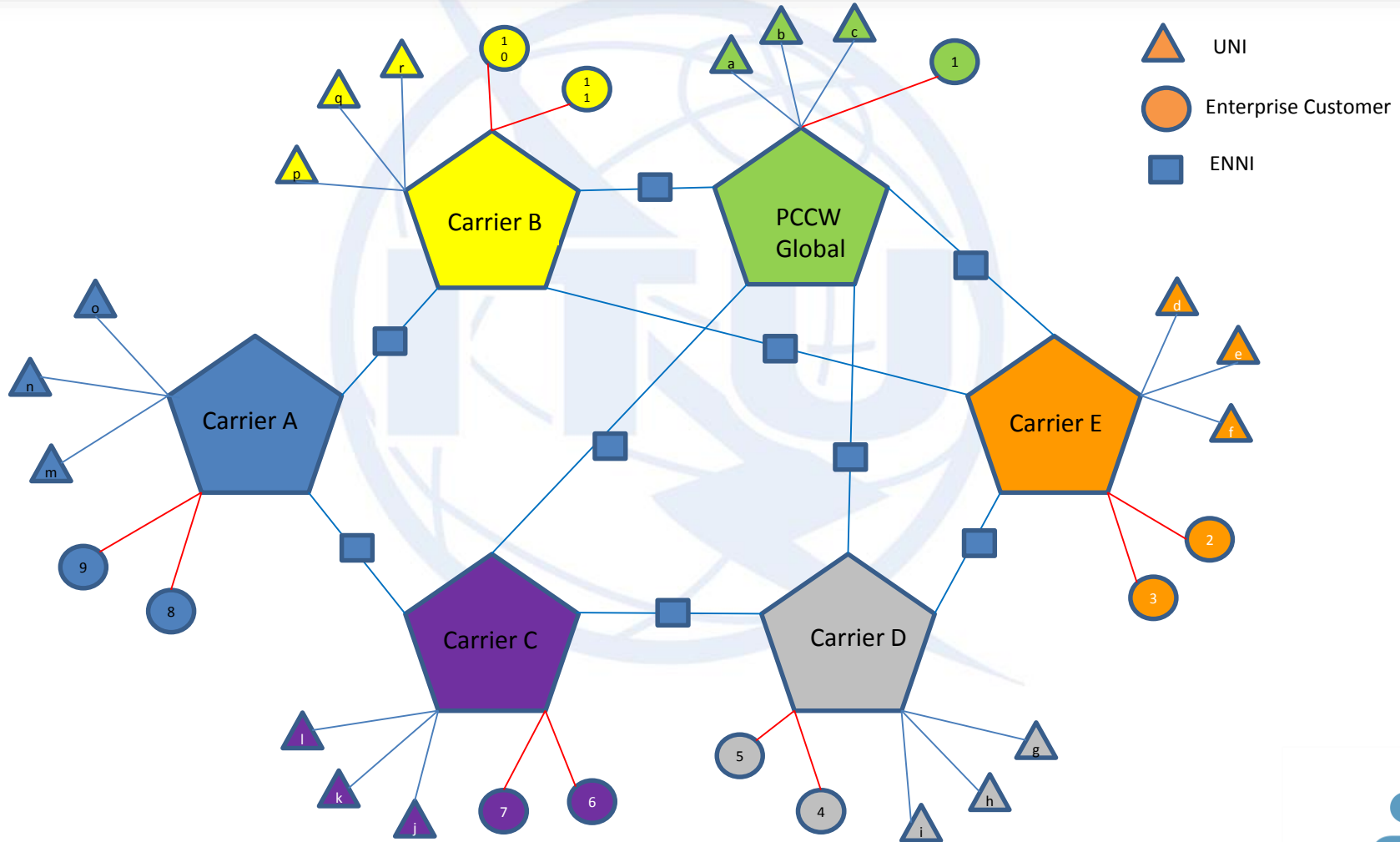
- **ENNI:**
  - ENNI with other CSP partners
  - ENNI with Public Cloud providers
- **Commercial Relations:**
  - Commercial and Operational Agreements with ENNI Partners
  - Consortia Privileges

### Customer Relationship Assets:

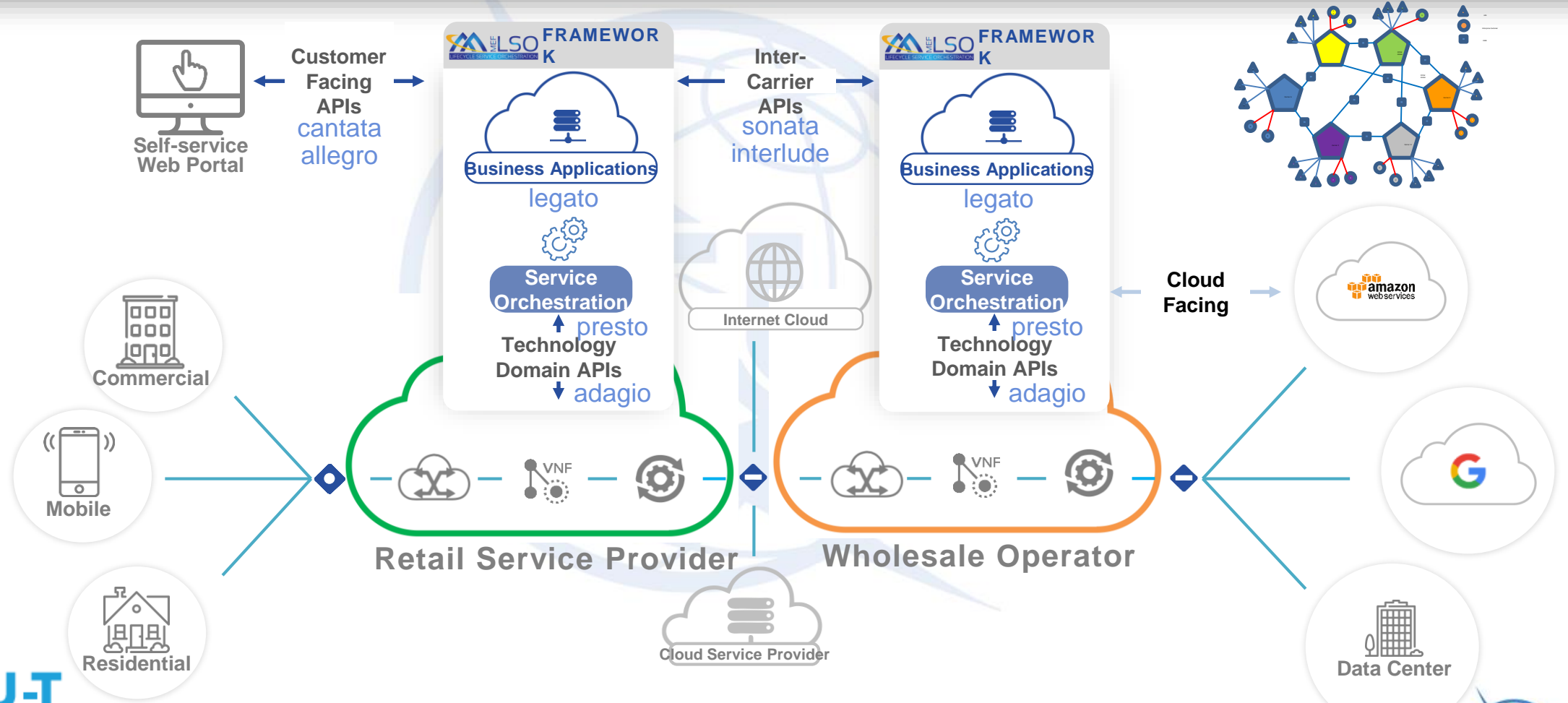
- Existing relationship with Customers
- Existing services to Customers
- Exclusive coverage



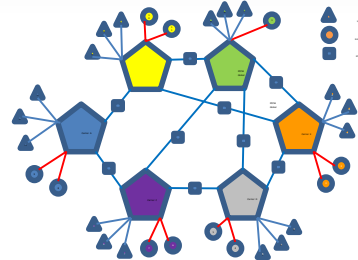
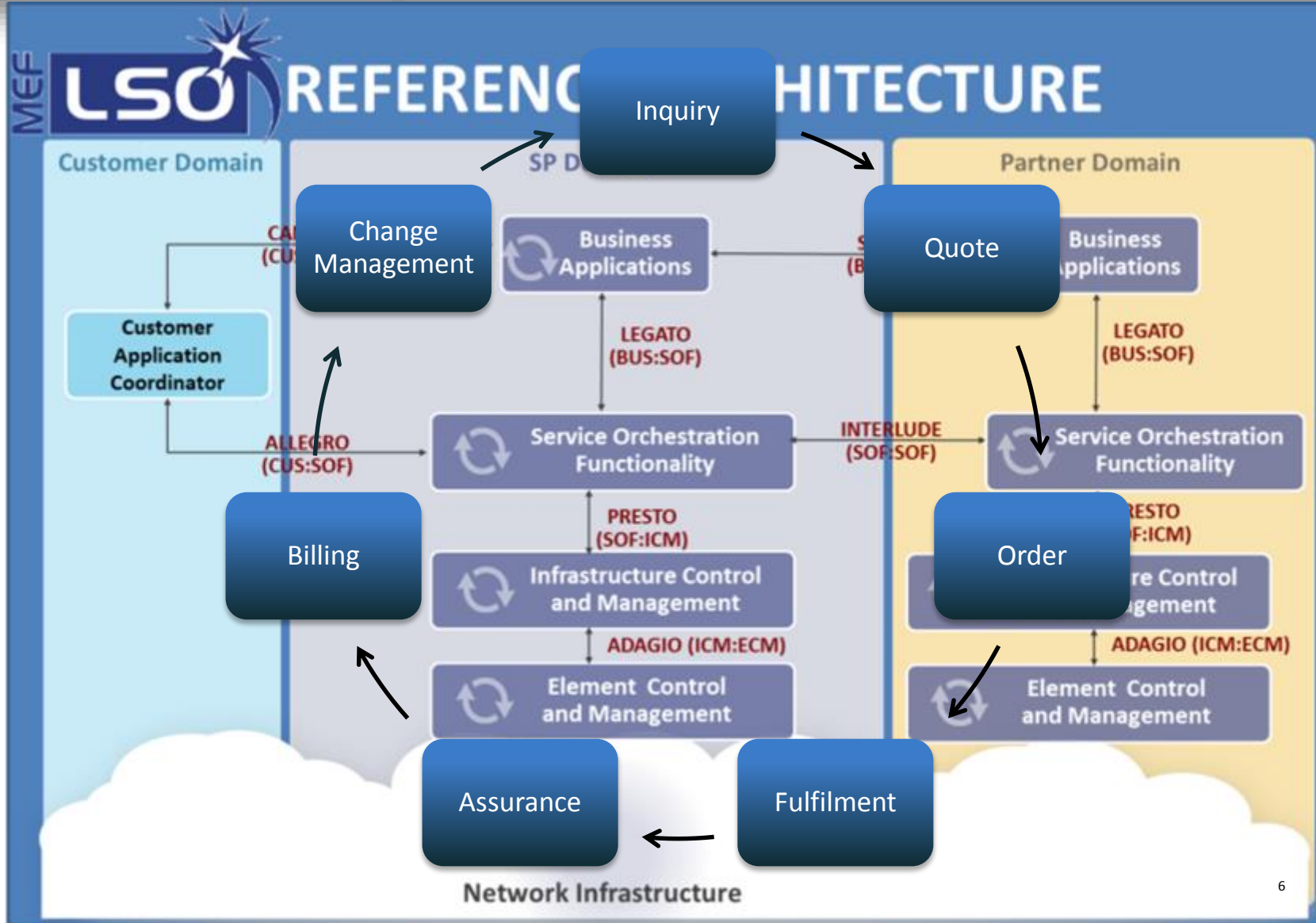
## The Wholesale Landscape



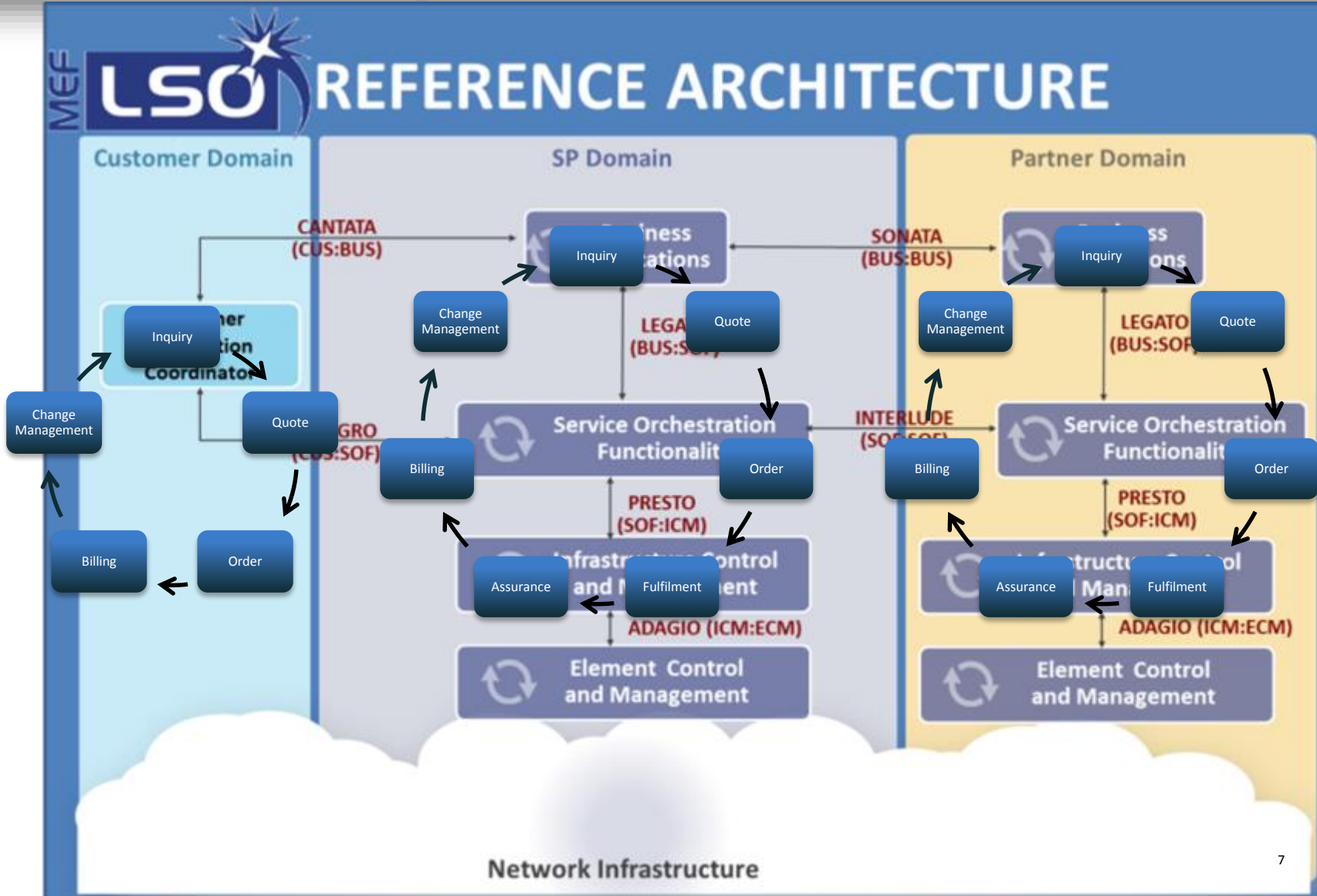
## MEF LSO Reference Architecture



## Multi Domain Federated Orchestration

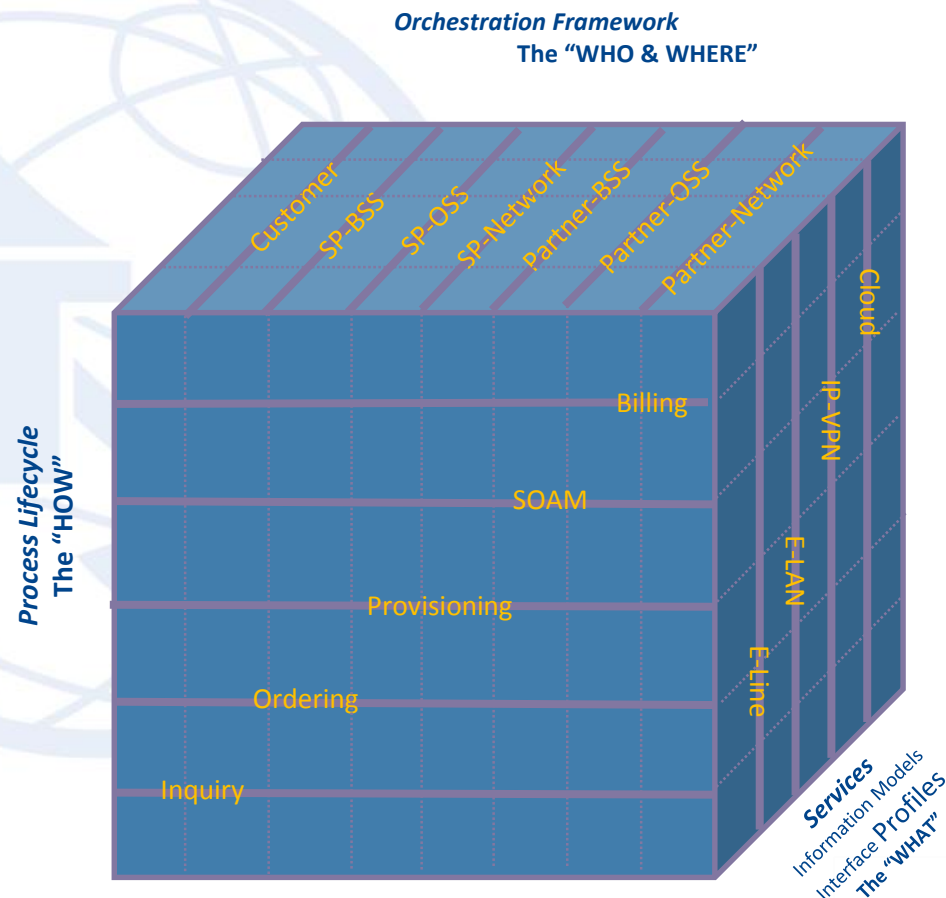


## Multi Domain Federated Orchestration



## The Three Fundamental Vectors

- Standard *Services*
- Standard *Processes*
- Standard *Orchestration Framework*





## LSO Committee summary

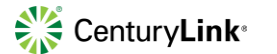
| Project                      | Editor           | Kick-off | Cfc1   | Cfc2   | Cfc3                                | LB   | Published |
|------------------------------|------------------|----------|--------|--------|-------------------------------------|------|-----------|
| LSO RA Phase 2 SOF           | John Strassner   | 2Q2016   | 2Q2017 | 4Q2017 |                                     |      | Hold      |
| Policy Driven Orchestration  | John Strassner   | 4Q2016   | 3Q2017 |        |                                     |      | Hold      |
| Legato MEF56 align with ONAP | Andy Mayer       | 1Q2018   |        |        |                                     |      | Hold      |
| IM Guidelines                | Joel Halpern     | 1Q2018   | 2Q2018 | *DBM   |                                     |      |           |
| MEF Core Model               | John Strassner   | 3Q2015   | 3Q2017 | 2Q2018 |                                     | DBM* |           |
| Commercial Attributes        | Shahar Steiff    | 3Q2017   | 1Q2018 | 3Q2018 |                                     |      |           |
| Network Slicing              | Sibylle Schaller | 1Q2018   | 3Q2018 |        |                                     |      |           |
| Interlude - Access Eline     | Mehmet Toy       | 2Q2017   | 1Q2018 | 3Q2018 |                                     |      |           |
| Sonata – Bus Reqmts MEF 57.1 | Dawn Kaplan      | 2Q2017   | 2Q2018 | 3Q2018 |                                     |      |           |
| Sonata - Ordering IPS        | Dawn Kaplan      | 2Q2018   | 3Q2018 |        |                                     |      |           |
| Sonata – Pre-ordering IPS    | Fahim/Ludovic    | 2Q2018   |        |        | CFC for Inventory done / others DBM |      |           |
| Presto NRM OAM               | Andrea Mazzini   | 1Q2018   | 3Q2018 |        |                                     |      |           |
| Presto - SOAM / SAT          | Mike Bencheck    | 4Q2016   | 3Q2017 | DBM*   |                                     |      |           |

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## MEF18 PoC – Data on Demand



Inquiry -> Quoting ->  
Invoicing -> Settlement -  
> Payment

Presented

Simulated

Delivery -> Operation ->  
Change Management



Self-service Web Portal



Commercial

Mobile



Residential

Customer Facing LSO  
Canata Allegro

FRAMEWORK  
catawrx  
Business Applications  
LSD

Inter-Carrier LSO  
Sonata

FRAMEWORK  
catawrx  
Business Applications  
LSD

LSO Intertide

Internet Cloud

Retail Service Provider Wholesale Operator

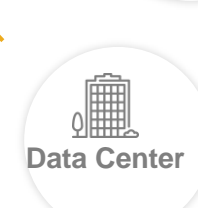
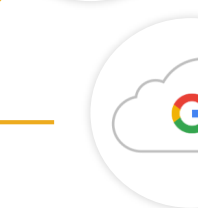
Cloud Service Provider

Other Carriers

Multi-Carrier Shared Blockchain  
Private Blockchain

Service Orchestration y Presto  
Domain LSO APIs Adagio VNF

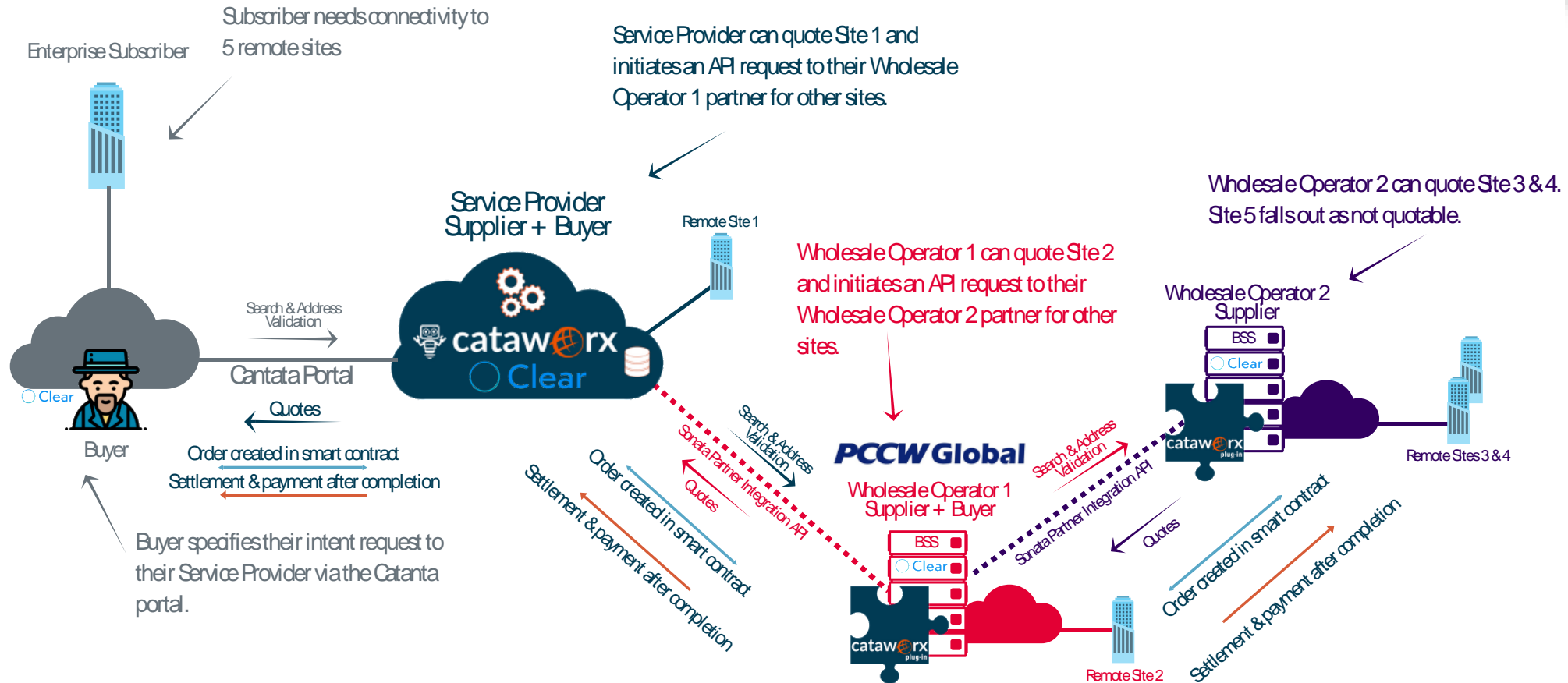
Service Orchestration y Presto  
Domain LSO APIs Adagio



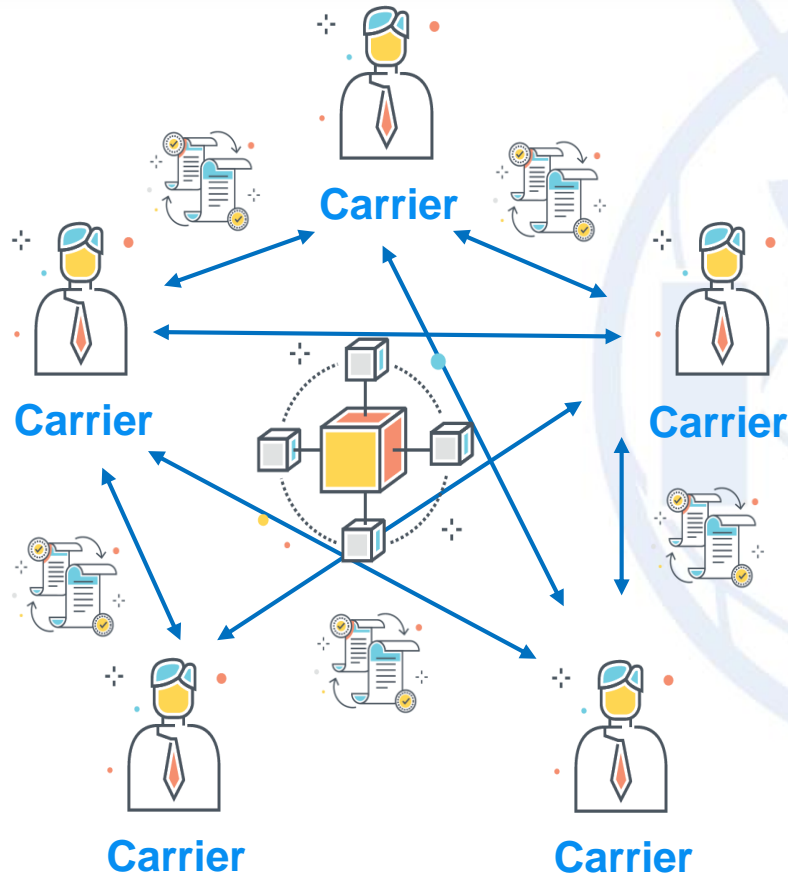
Data Center



## MEF18 PoC – Data on Demand



## Open-source based blockchain settlement and clearing network



### Open-source shared blockchain

Permissioned network using open-source Ethereum nodes

### Interoperable private blockchains

Between partners with NNIs, using interoperable protocol, beginning of standardization processes

### Pluggable Commercial Logic and Ingestion

Single shared network with variety of products and interactions

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Thank You!

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