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Driving FTTx Network Economics through programmable FTTx

A **Perspective** from Sterlite Technologies Ltd.

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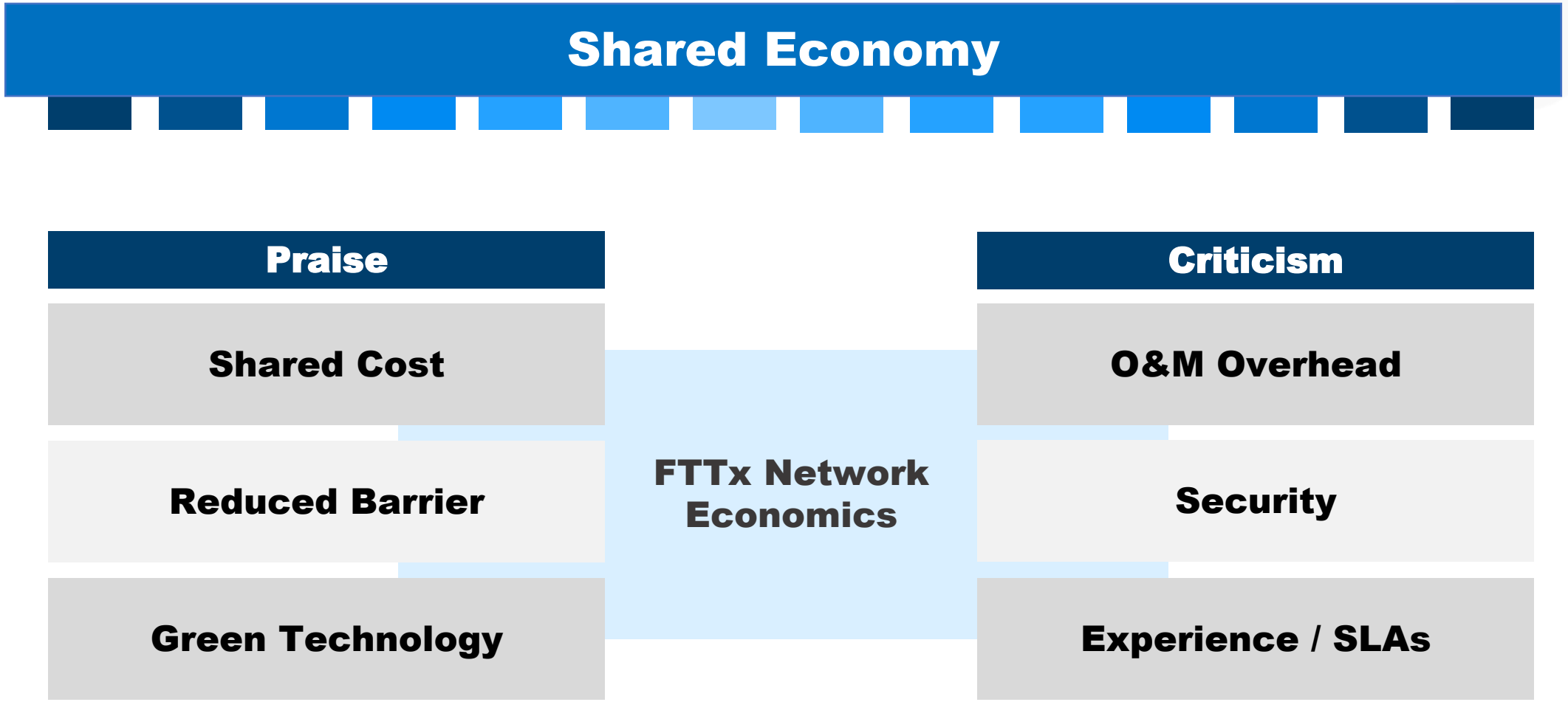
Sharing Economy – The New Economic Thinking



FTTx: Changing Perspective

62% FTTx Uptake required for pay back for traditional FTTx investments

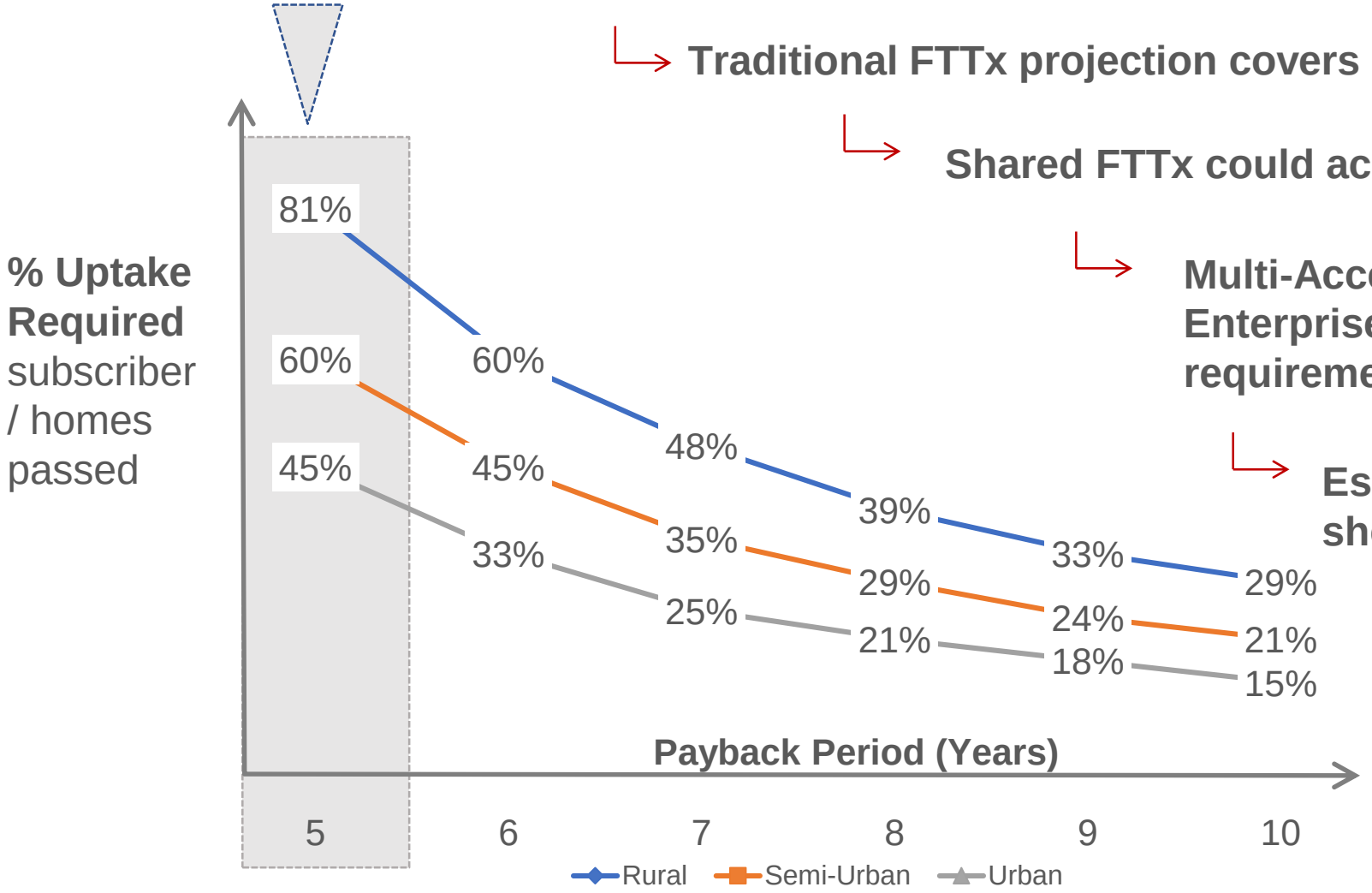
→ **Traditional FTTx projection covers at-max 30% to 35% Market Share**

→ **Shared FTTx could accelerate pay back period**

→ **Multi-Access setup converges Home, Enterprises and Mobile Fronthaul last-mile requirements**

→ **Essentially Increasing % Uptake in shorter Duration**

→ **With shared FTTx, Focus shifts to Managing Service Isolations, Continuity and Seamless Operations**



Source: Delta Partners Analysis

STL's Approach: Modelling FTTx for Shared Economy

ILLUSTRATIVE EXAMPLE: Urban area with 20,000 population per sq. km.

576 Fibre strands (incl. 20% extra for maintenance) **& 1960 Gbps Peak Capacity per Sq. km.**

Households / SMB	
No. of SMBs	150
No. of Households	5000
Households / SMBs that can afford	75 %
Projected Market Share	50 %

1 Gbps (Peak) → **XGS PON**

1000 Gbps (Peak)
240 Strands

2000 Subscribers (SMB + Households)

Avg 8 connections / XGS PON Termination

5G Base Stations	
5G Macro, 4x4 MIMO 3 Sectors	10
Projected Market Share	50 %

Scalable Bandwidth & High SLA Ultra Low Latency → **P2P**

360 Gbps (Peak)
60 Strands

5 Macro Base Stations * 6 Pair of Fiber/Site

Small Cells	
Small cell coverage Length (km)	12
Distance between Poles (km)	0.2
Projected Market Share	50%

Differentiated Services For Mobility & Smart City → **Small cell**

600 Gbps (Peak)
180 Strands

30 Poles * 3 Pairs of Fiber / Pole
Small cell antenna:
4 x 4 MIMO or 16 x 16 MIMO, 1 Sector

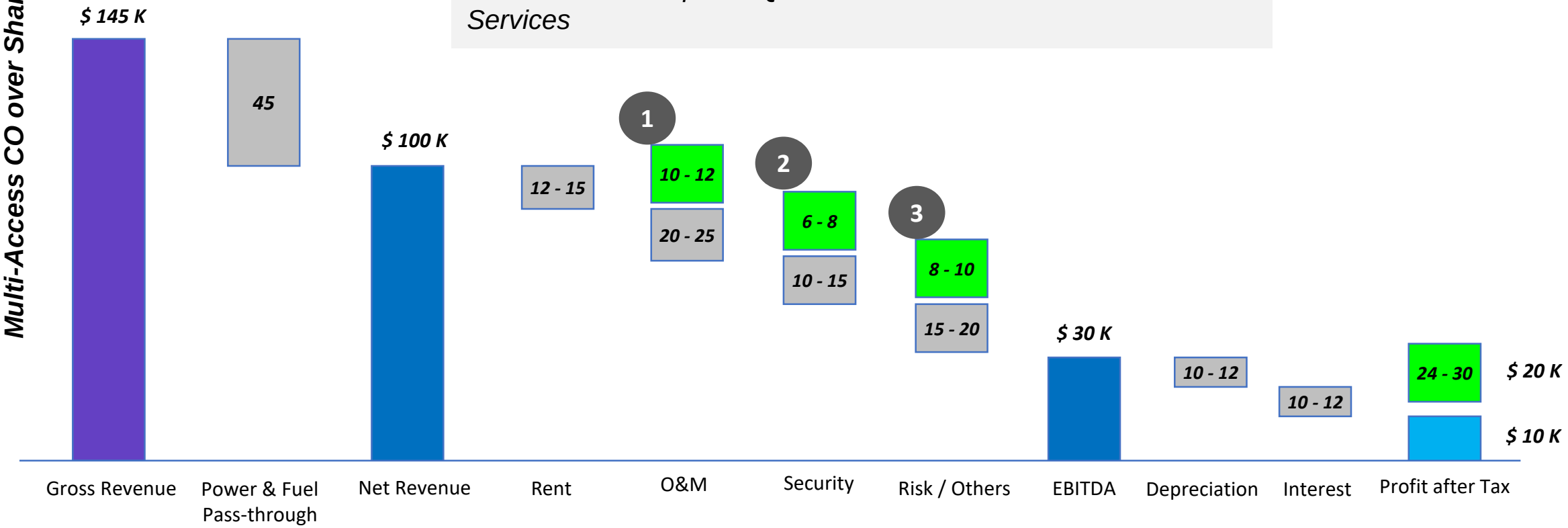
STL's Approach: pFTTx to make shared FTTx Realizable

1. *pFTTx establishes ease for setting up common NOC for shared Multi-vendor FTTx and significantly reduces **O&M Overhead***

2. *pFTTx establishes granular control over services & subscriber isolations, paving the way for last mile **Security** Policy Enforcement*

3. *pFTTx enables granular monitoring and control of policies to avoid **SLA** violations, improve **QoE** Assurance, and Customer centric Services*

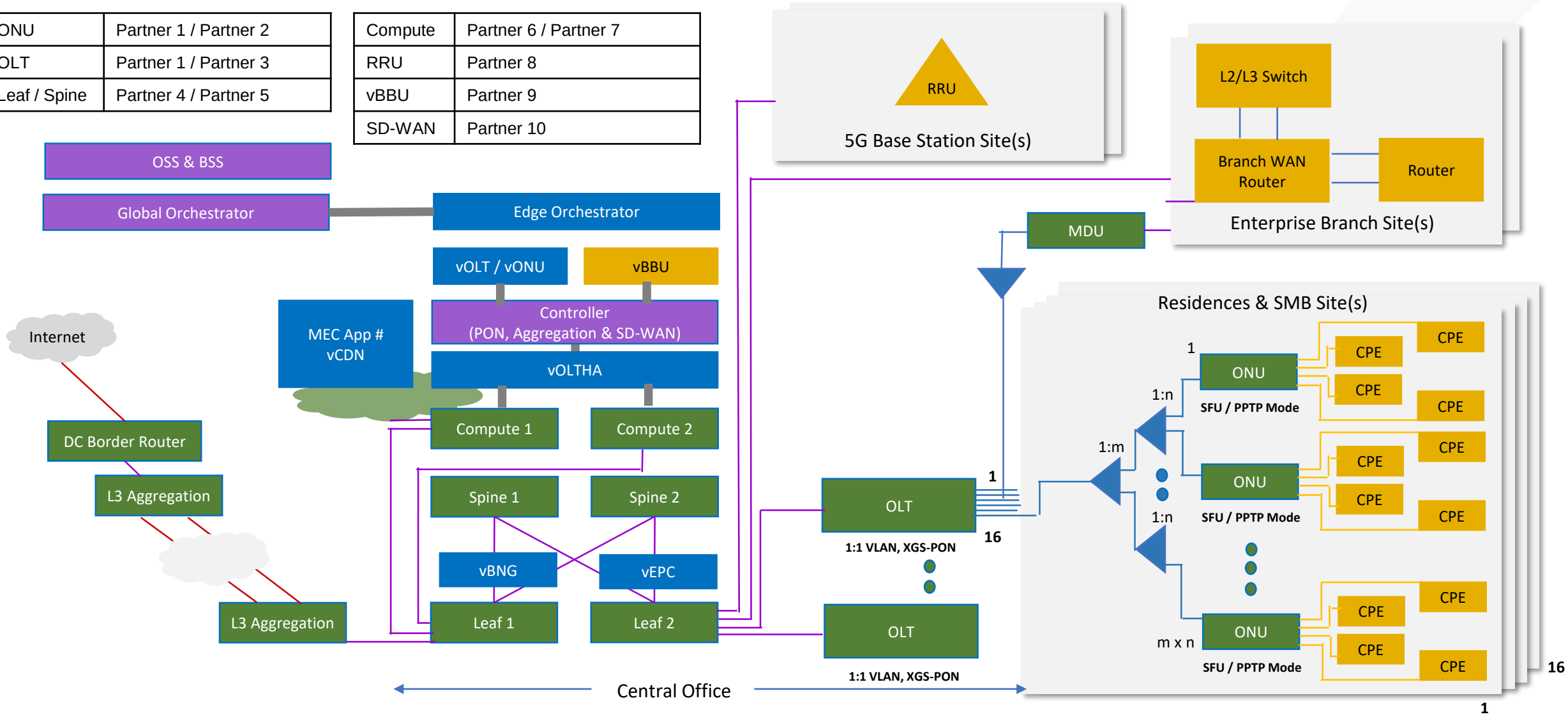
Illustrative Example of profit & Loss Structure for Multi-Access CO over Shared FTTx



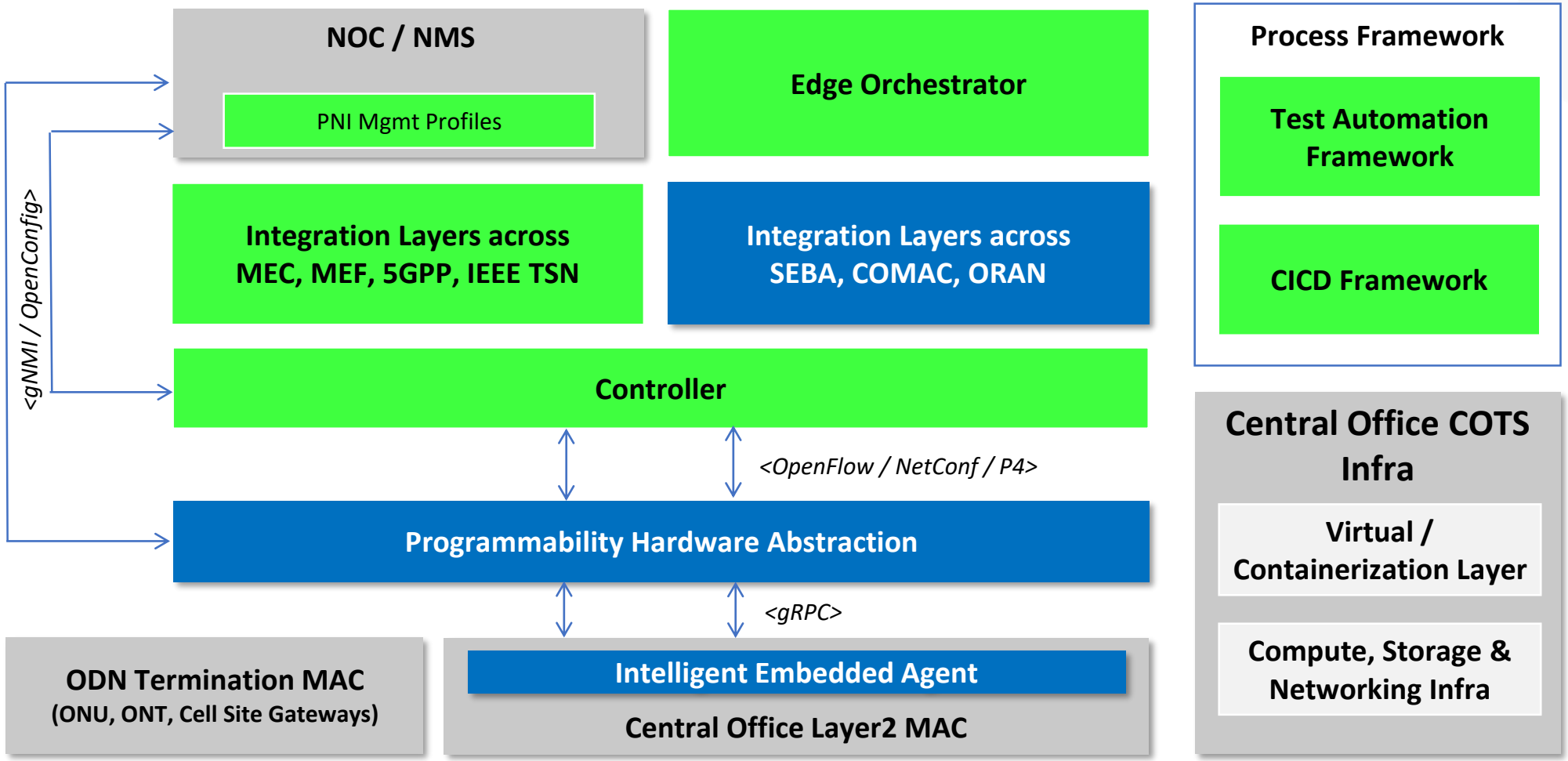
STL's Shared FTTx Network: Transformation Path

ONU	Partner 1 / Partner 2
OLT	Partner 1 / Partner 3
Leaf / Spine	Partner 4 / Partner 5

Compute	Partner 6 / Partner 7
RRU	Partner 8
vBBU	Partner 9
SD-WAN	Partner 10



STL's Programmable FTTx Solution: Overview



Observation: pFTTx Performance Benchmarking

Speed

- Control Plane Provisioning / Re-provisioning Speed
- Control Plane Asynchronous Message Processing Speed

Accuracy

- Control Plane Provisioning / Re-provisioning Loss
- Control Plane Provisioning / Re-provisioning Latency

Reliability

- Aggregated Provisioning / Re-provisioning Reliability

Achieved 8 Times (8 x) Performance Gain

Observation: TL9000 Metrics for ongoing pFTTx Trial

System Outage (SSO)	0%
Customer Complain Report Ratio (CCRR)	0.31
Mean Time to Restore Service (MTRS)	2.15 Hrs
Fixed Response Time - Priority 1 & 2 (FRT2)	100%
Fixed Response Time - Priority 3 (FRT3)	75%

Launching pFTTx PODS…

- Programmable
- Open
- Disaggregated
- Solutions

SDN, NFV & Artificial Intelligence

Open Networking Foundation

OPEN Compute Project

BROADCOM.

Edge-corE NETWORKS

ALPHA Alpha Networks Inc.

vmware

FTTx, 5G Fronthaul, MEC, Access Agnostic Controller & Edge Orchestrator

beyond tomorrow