



Converged Multi-Access Edge and Next-Gen SDN Tutorial

Agenda

Time	Topics	Presenters
9:00am – 9:20am	Introduction & Updates to ONF Project Portfolio	Timon Sloane, ONF
9:20am – 9:45am	NG-SDN: Stratum & P4 Project Update, Google's Use of Stratum & P4Runtime, NG ONOS New Project Launch	Brian O'Connor, ONF Devjit Gopalpur, Google Thomas Vachuska, ONF
9:45am – 10:00am	Virtualized Broadband: SEBA Reference Design	Tom Moore, AT&T
10:00am – 10:20am	Mobile & 5G: OMEC Project Overview & COMAC Initiative Launch	Lyle Bertz, Sprint Oguz Sunay, ONF
10:20am – 10:35am	Break	---
10:35am – 10:45am	Optical: ODTN/TIP Collaboration & Cassini White Box	Wenyu Shen, NTT Communications
10:45am - 11:00am	Edge Cloud	Larry Peterson, ONF
11:00am – 11:50am	Operator Lightning Talks: How ONF Projects Are Being Used	Dave Martin, Blackfoot Wenyu Shen, NTT Communications Lyle Bertz, Sprint Bora Eliacik, Turk Telekom Tom Anschutz, AT&T
11:50am - 12pm	Q&A	All



Transforming Operator Networks with Open Source

Timon Sloane
VP Marketing & Ecosystem, ONF

ONF – Operator Led Consortium



With 13+ additional operators at 'Innovator' level

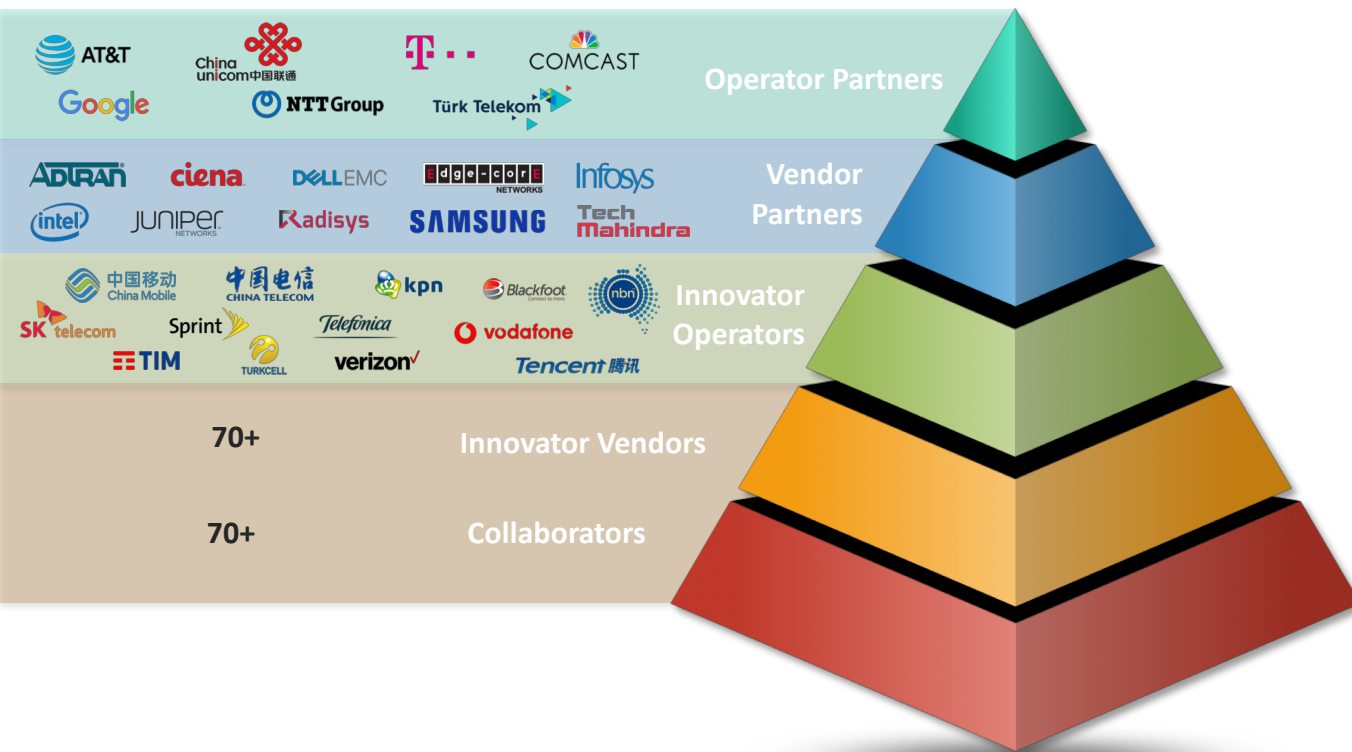
Collaborating to Address a Common Problem

Operators need cloud-like economics and agility

Incumbent vendors have not been providing open tools & cloud-like building blocks

Operator Led - Curated Open Source Community

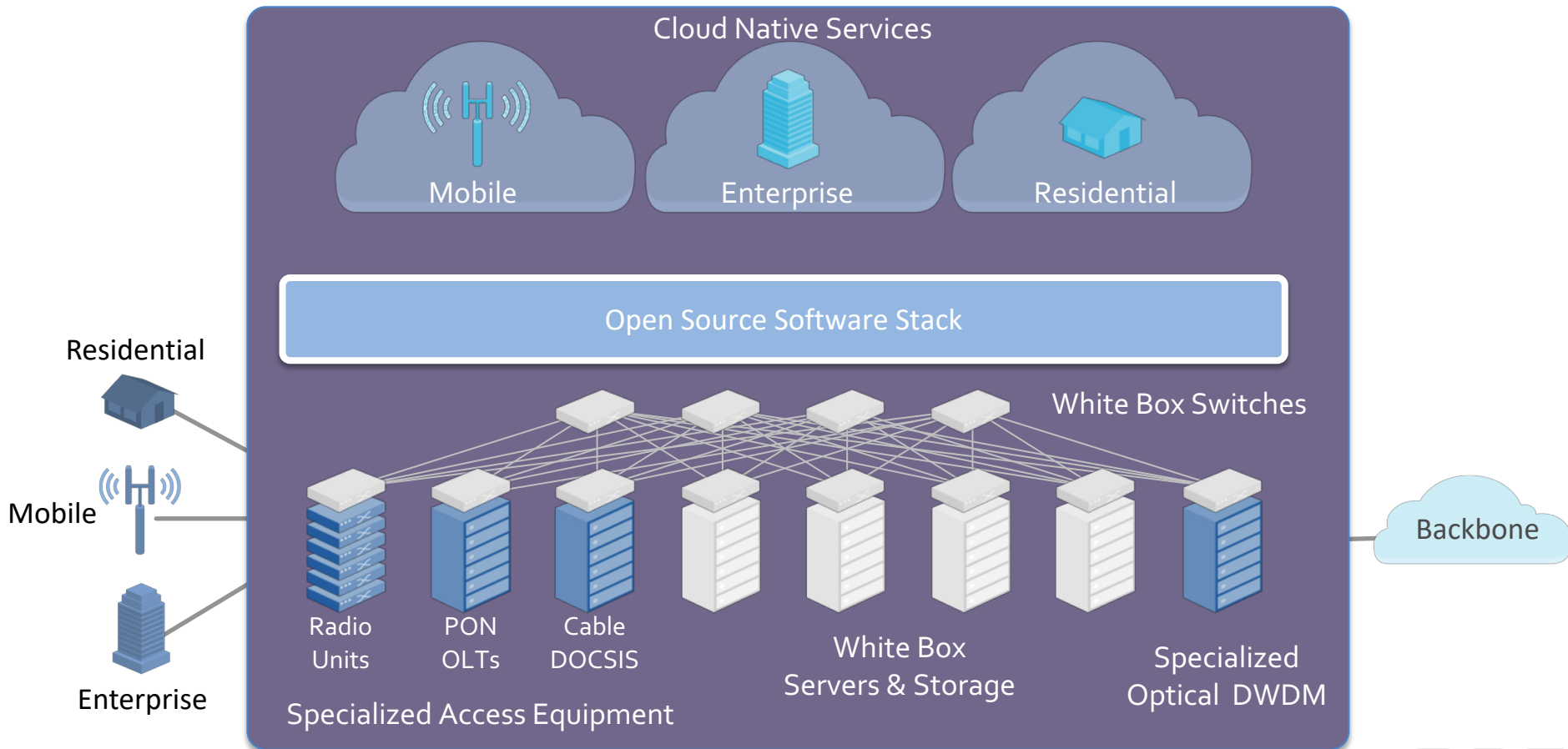
Partners committed to disaggregation, open source and SDN/NFV/Cloudification



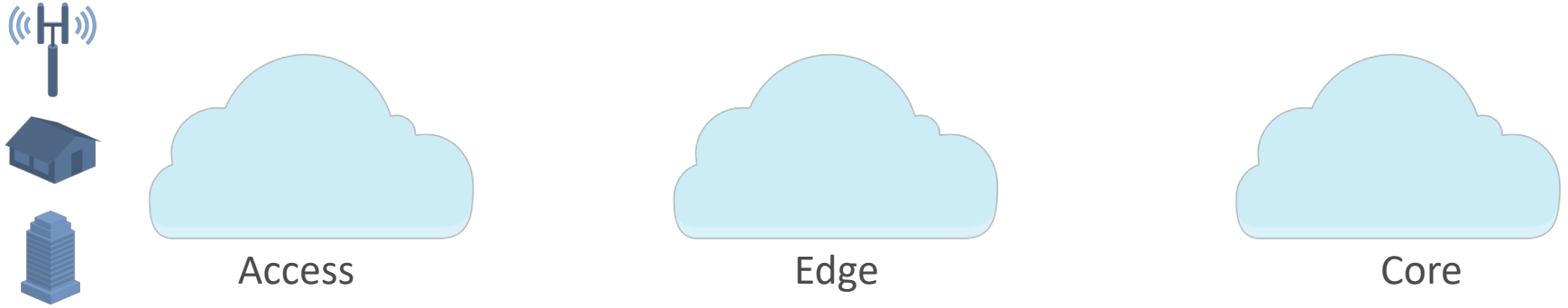
ONF BOARD

	AT&T	Andre Feutsch – CTO & ONF Chair
	T-Mobile	Jochen Appel - VP
	Google	Amin Vahdat - Fellow
	NTT Group	Dai Kashiwa - Director
	COMCAST	Rob Howald - VP
	China unicom 中国联通	Shao Guanglu - SVP
	edgecore NETWORKS	George Tchapanian - CEO
	Türk Telekom	Yusuf Kirac - CTO
	STANFORD ONF	Nick McKeown - Prof Guru Parulkar, Exec Dir

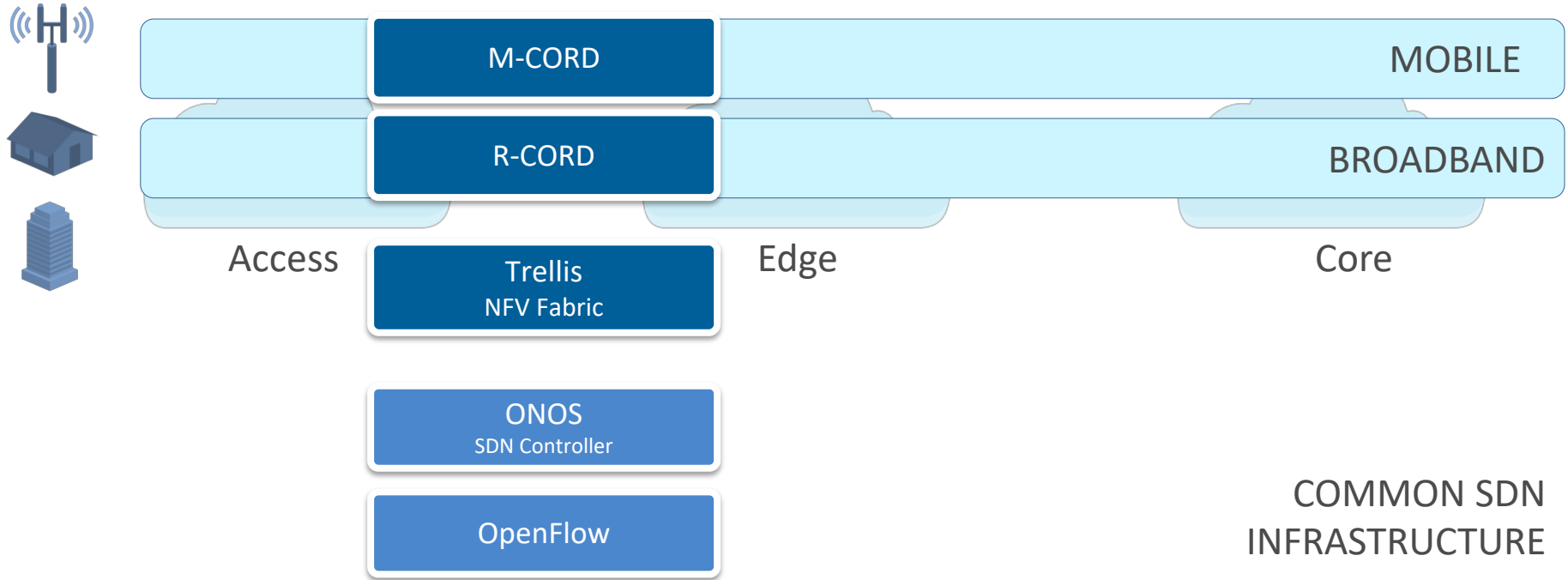
CORD – Next Generation Edge Cloud Platform



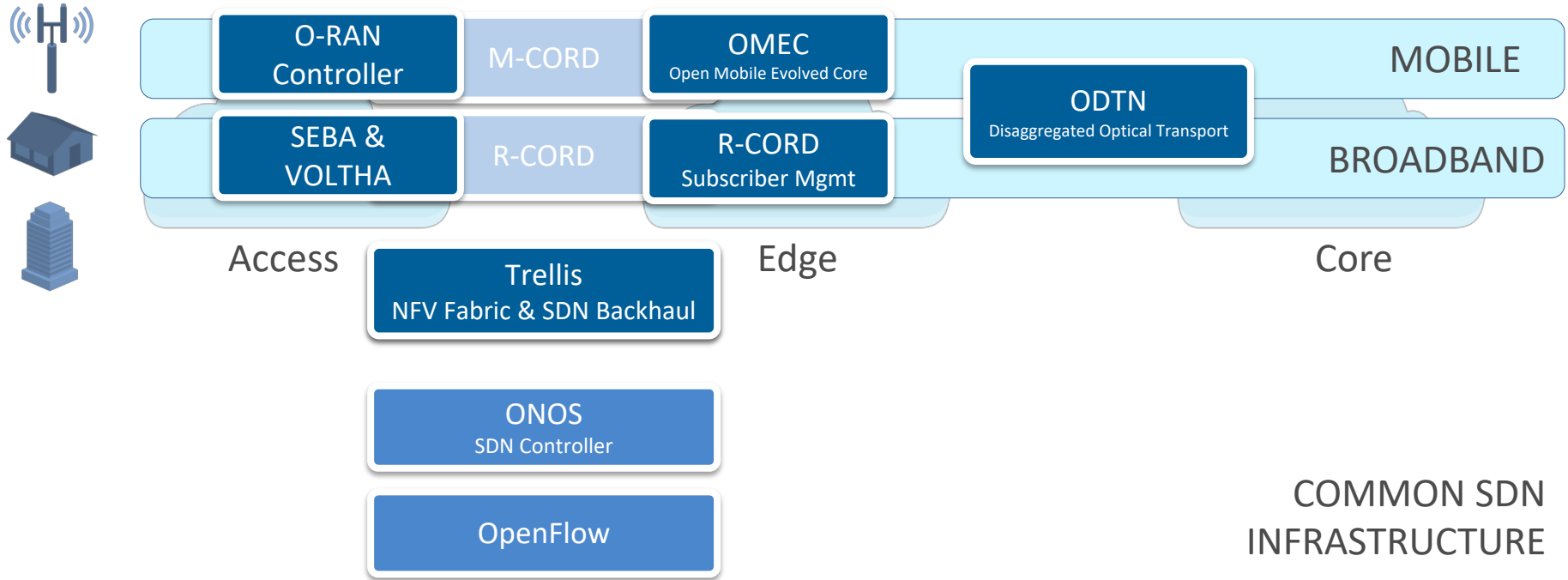
ONF's Interconnected Set of Curated Open Source Projects



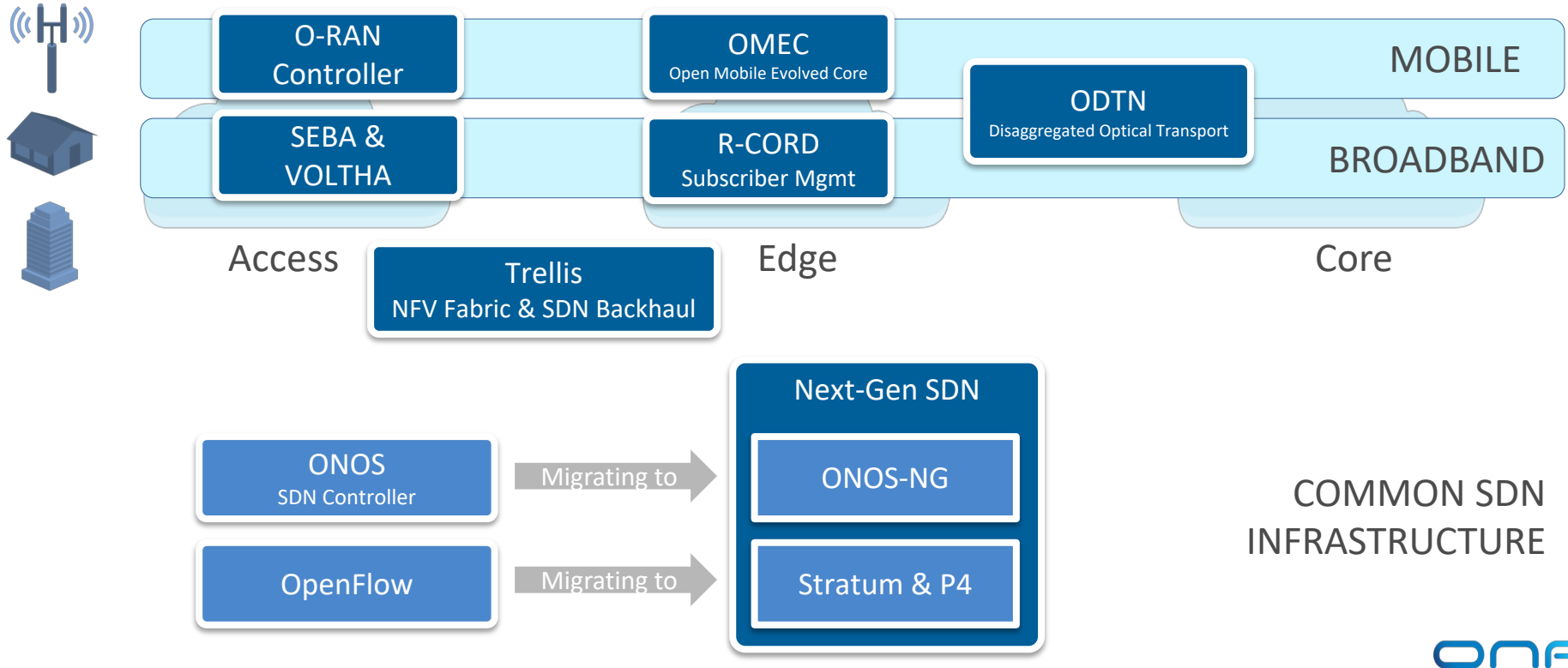
ONF's Interconnected Set of Curated Open Source Projects



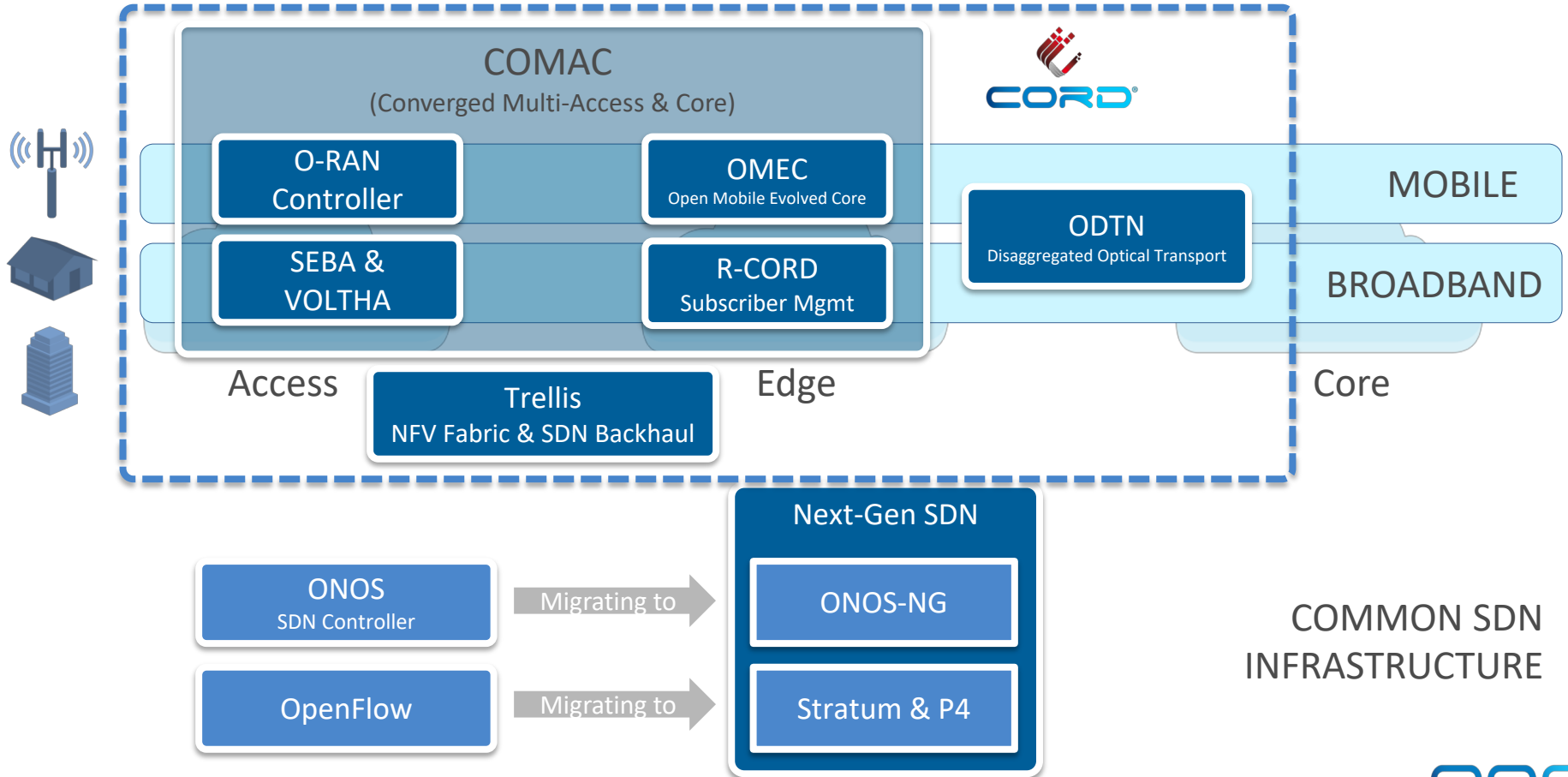
ONF's Interconnected Set of Curated Open Source Projects



ONF's Interconnected Set of Curated Open Source Projects



ONF's Interconnected Set of Curated Open Source Projects



Operator Traction Worldwide



British Telecom: R-CORD
Deutsche Telekom: SEBA, M-CORD, NG-SDN
Swisscom (Fastweb): R-CORD
KPN: NG-SDN, Stratum
Telefonica: R-CORD, M-CORD
Telecom Italia: M-CORD
Colt: R-CORD

China Unicom: M-CORD, E-CORD
China Mobile: M-CORD, E-CORD
NTT, NTT East: ODTN, R-CORD
SK Telecom: M-CORD
Reliance Jio: SEBA, M-CORD

AT&T: SEBA, VOLTHA
Blackfoot: SEBA
Verizon: M-CORD
Sprint: M-CORD
Comcast: Trellis, ODTN
Google: Stratum, SEBA, NG-SDN

NBN: SEBA, VOLTHA
Telstra: M-CORD

Turk Cell: R-CORD
Turk Telekom: SEBA, M-CORD

Operator Traction Worldwide

“Nearly 40% of all end-customers will have service provided by ... CORD by mid-2021”



Roz Roseboro
Heavy Reading

“70% of operators worldwide are planning to deploy CORD”



Michael Howard
IHS Markit

British Telecom: R-CORD
Deutsche Telekom: SEBA, M-CORD
Swisscom (Fastweb): R-CORD
KPN: NG-SDN, St
E-CORD, M
CORD
CORD

AT&T:
Blackfo
Verizon
Sprint:
Comcas
Google:

E-CORD
E-CORD
CORD
CORD

LTTHA

Telstra: M-CORD

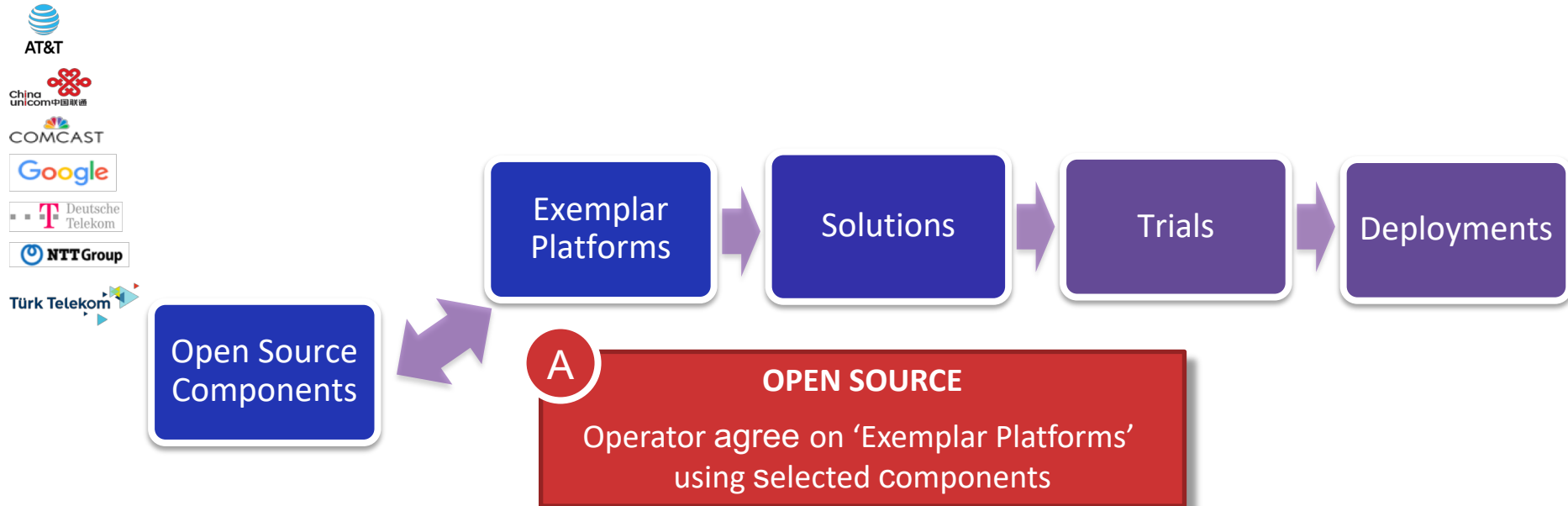
Turk Cell: R-CORD
Turk Telekom: SEBA, M-CORD



Reference Designs

Complementing Open Source with Operator Led Specifications

Reference Design Strategy



Reference Design Strategy

B

REFERENCE DESIGN

Operators jointly create common specifications

Reference Designs

Exemplar Platforms

Solutions

Trials

Deployments

Open Source Components

A

OPEN SOURCE

Operator agree on 'Exemplar Platforms' using selected components



Reference Design Strategy

B

REFERENCE DESIGN

Operators jointly create common specifications

C

DEPLOYMENTS

Operator RFPs based on these designs

Reference
Designs

Operators commit to trials and deployments

Reference Designs become “gold standards” for basis of RFPs

RFP

Exemplar
Platforms

Solutions

Trials

Deployments

Open Source
Components

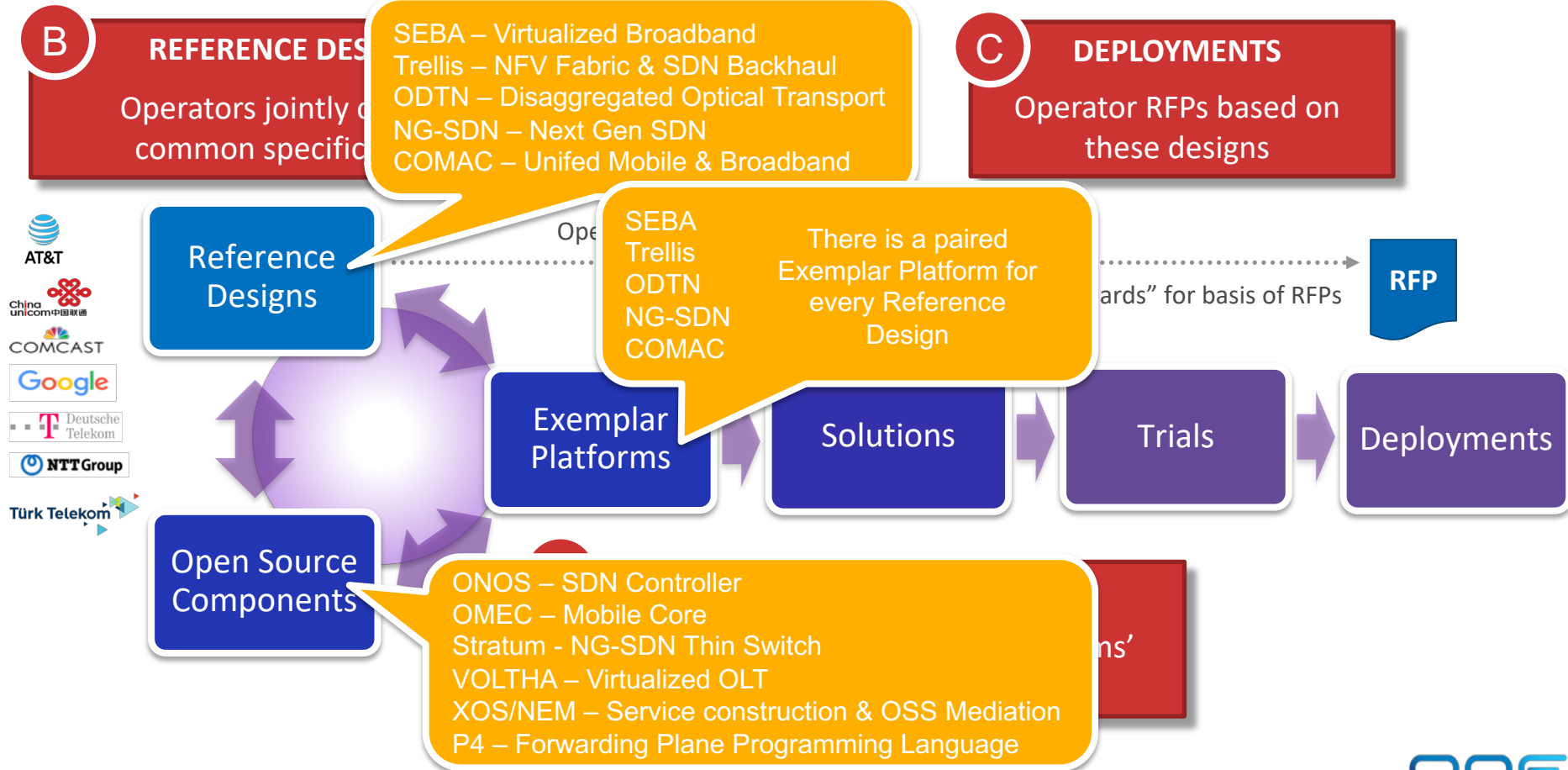
A

OPEN SOURCE

Operator agree on ‘Exemplar Platforms’
using selected components



Reference Design Strategy





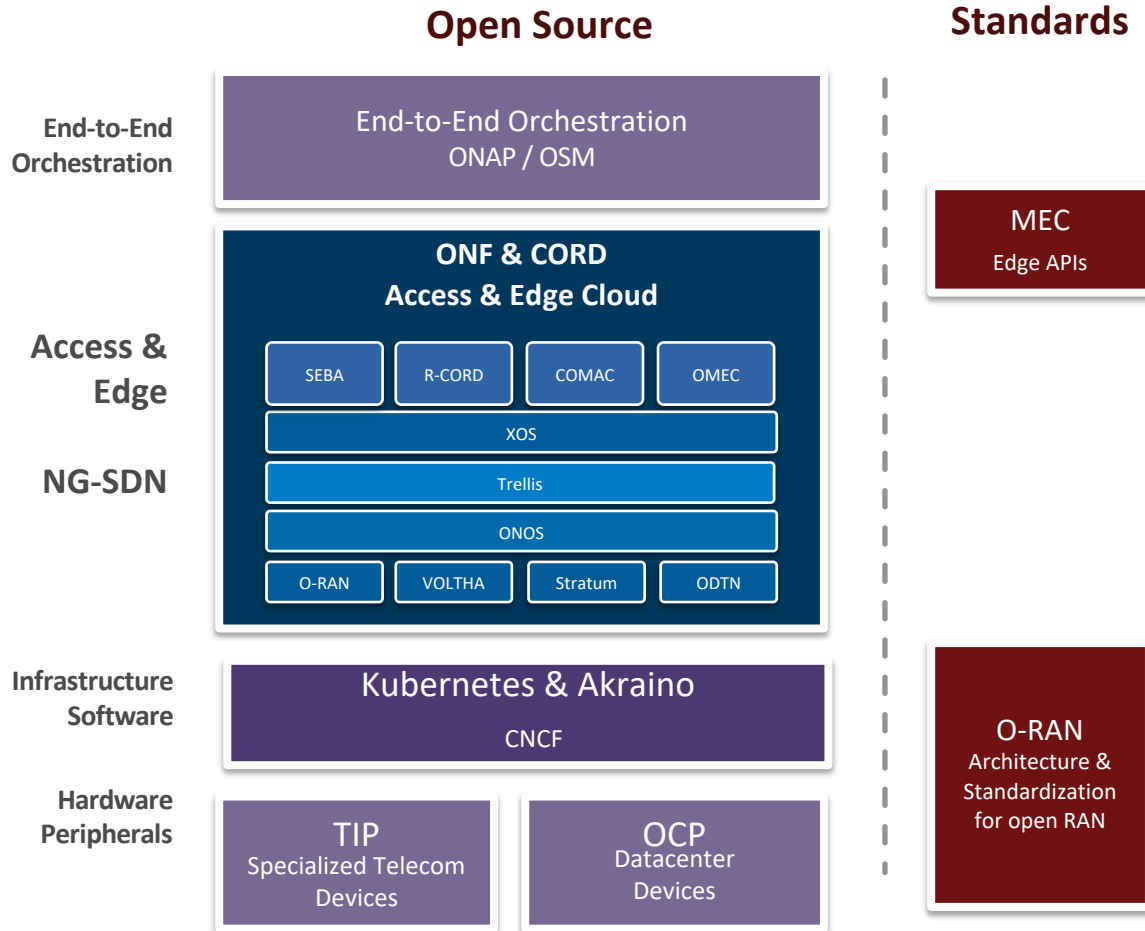
Comparing ONF with Other Open Source Initiatives

ONF Different & Complementary to Other Initiatives

- Unique Operator Led *Curated Open Source* Model
- Only open source organization with an engineering team
 - ONF Lab enables and accelerates implementations
 - Can pursue a disruptive agenda when incumbents resist investment
- Driving Disruption – Essential at the Access and Edge
 - Majority of Cap-Ex Costs are at Operator Edge
 - Therefore we see open white box architectures yielding massive efficiencies

ONF & CORD in Context of Open Source Ecosystem

Open Source ecosystem is creating a comprehensive stack that is poised to deliver robust solutions, from white box peripherals to end-to-end solutions



Call Out

- ONF Pioneers have 'bled' the way driving transformation
 - Making [Open Source](#), [White Box](#) and [Disaggregation](#) Possible
- You can now benefit from all this work
- Tremendous opportunity to create new business models and help drive the agenda for this new open source era

Reach out if you'd
like to explore
opportunities

Timon Sloane

timon@openNetworking.org



Thank You