



VOLTHA & R-CORD

New Directions

May 2017

VOLTHA
core

Maple
Adaptor

Twisted RPC

VM-in-the-
middle

Closed/Proprietary

EdgeCore
OLT

Sept 2017

VOLTHA
core

EdgeCore
Adaptor

GRPC
(BRCM-BAL
based
protobufs)

EdgeCore
OLT

March 2018

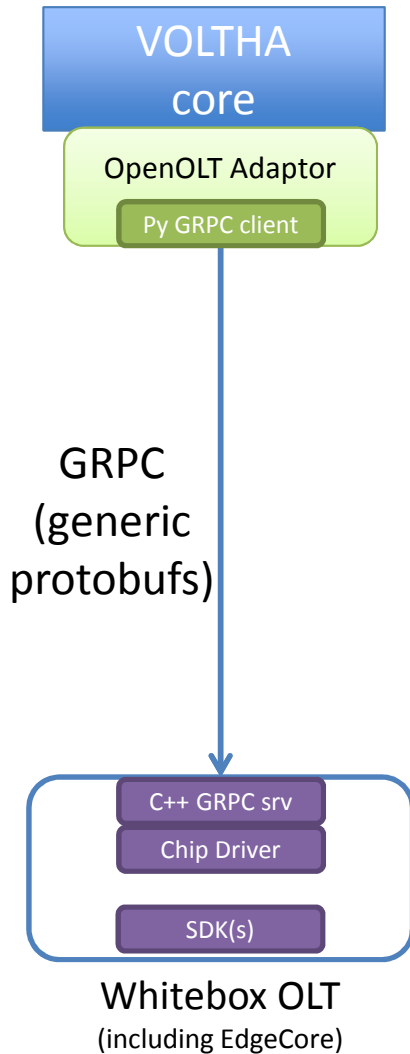
VOLTHA
core

OpenOLT
Adaptor

GRPC
(generic
protobufs)

Whitebox
OLT
(including
EdgeCore)

March 2018



Why OpenOLT Adaptor?

- Generic Switch adaptor – ease of onboarding for new white-box vendors <not BAL specific; does not have to write their own>
- GRPC C++ server in EdgeCore OLT software
- OpenOLT adaptor uses experimental new usage model (bottom-up); not disruptive for others who may want to continue with earlier usage-model - EdgeCore adaptor (top down)
- Generic protobufs – less heavy compared to BAL – grow with usage
- Does not use XPON

```

preprovision_olt -t asfvolt16_olt -H <olt_mgmt_ip>:59991
enable 0001f6f4595fdc93

```

```

channel_group create -n "Manhattan" -d "Channel Group for Manhattan"
-a up -p 100 -s 000000 -r raman_none
channel_partition create -n "WTC" -d "Channel Partition for World Trade
Center in Manhattan" -a up -r 20 -o 0 -f false -m false -u serial_number -c
"Manhattan"
channel_pair create -n "PON port" -d "Channel Pair for Freedom Tower in
WTC" -a up -r down_10_up_10 -t channelpair -g "Manhattan" -p "WTC" -i
0 -o class_a

```

```

traffic_descriptor_profile create -n "TDP 1" -f 100000 -a 500000 -m
1000000 -p 1 -w 1 -e additional_bw_eligibility_indicator_none

```

```

channel_termination create -i 0001bb590711de28 -n "PON port" -d
"Channel Termination for Freedom Tower" -a up -r "PON port" -c "AT&T
WTC OLT"

```

Wait for 5 sec for PON interface up

```

vont_ani create -n "ATT Golden User" -d "ATT Golden User in Freedom
Tower" -a up -p "WTC" -s "BRCM12345678" -r "PON port" -o 1

```

Wait for 5 Sec for ONT to come up

```

ont_ani create -n "ATT Golden User" -d "ATT Golden User in Freedom
Tower" -a up -u true -m false

```

```

tcont create -n "TCont 1" -r "ATT Golden User" -t "TDP 1"

```

#Wait for 5 sec for scheduler configuration to finish.

```

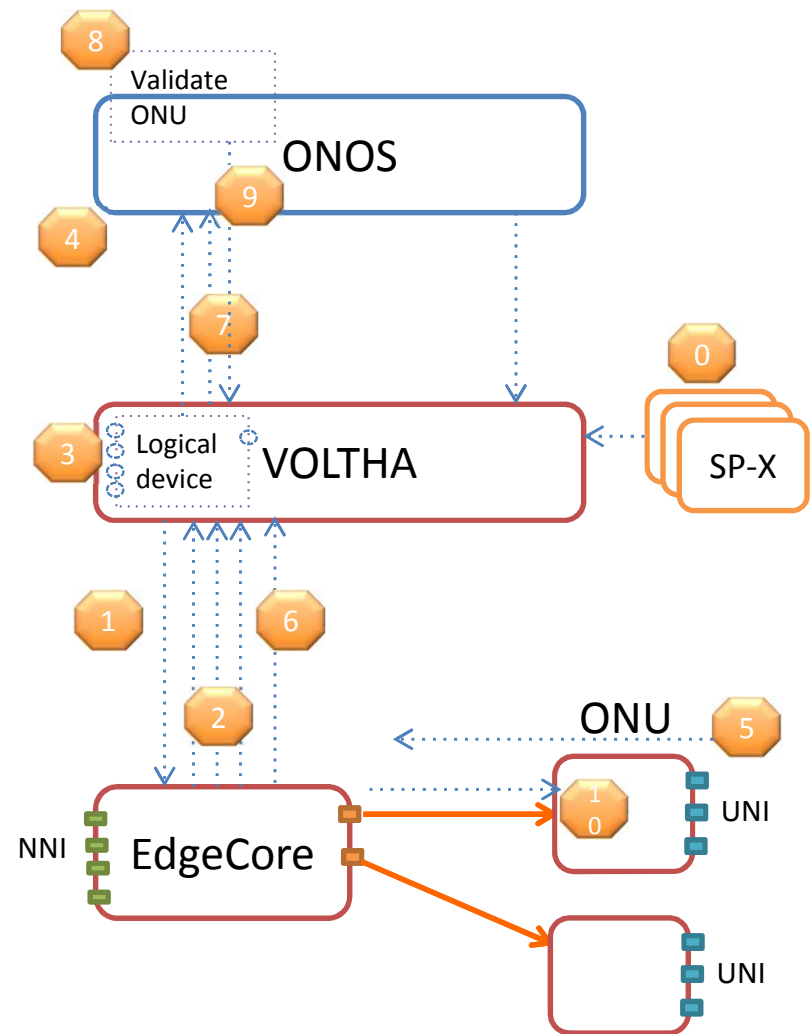
v_enet create -n "Enet UNI 1" -d "Ethernet port - 1" -a up -r "ATT Golden
User"

```

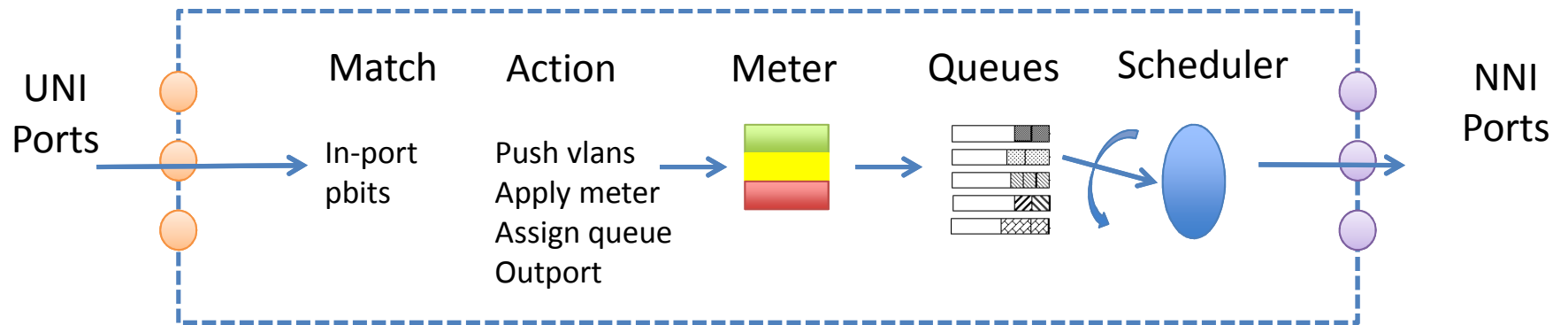
```

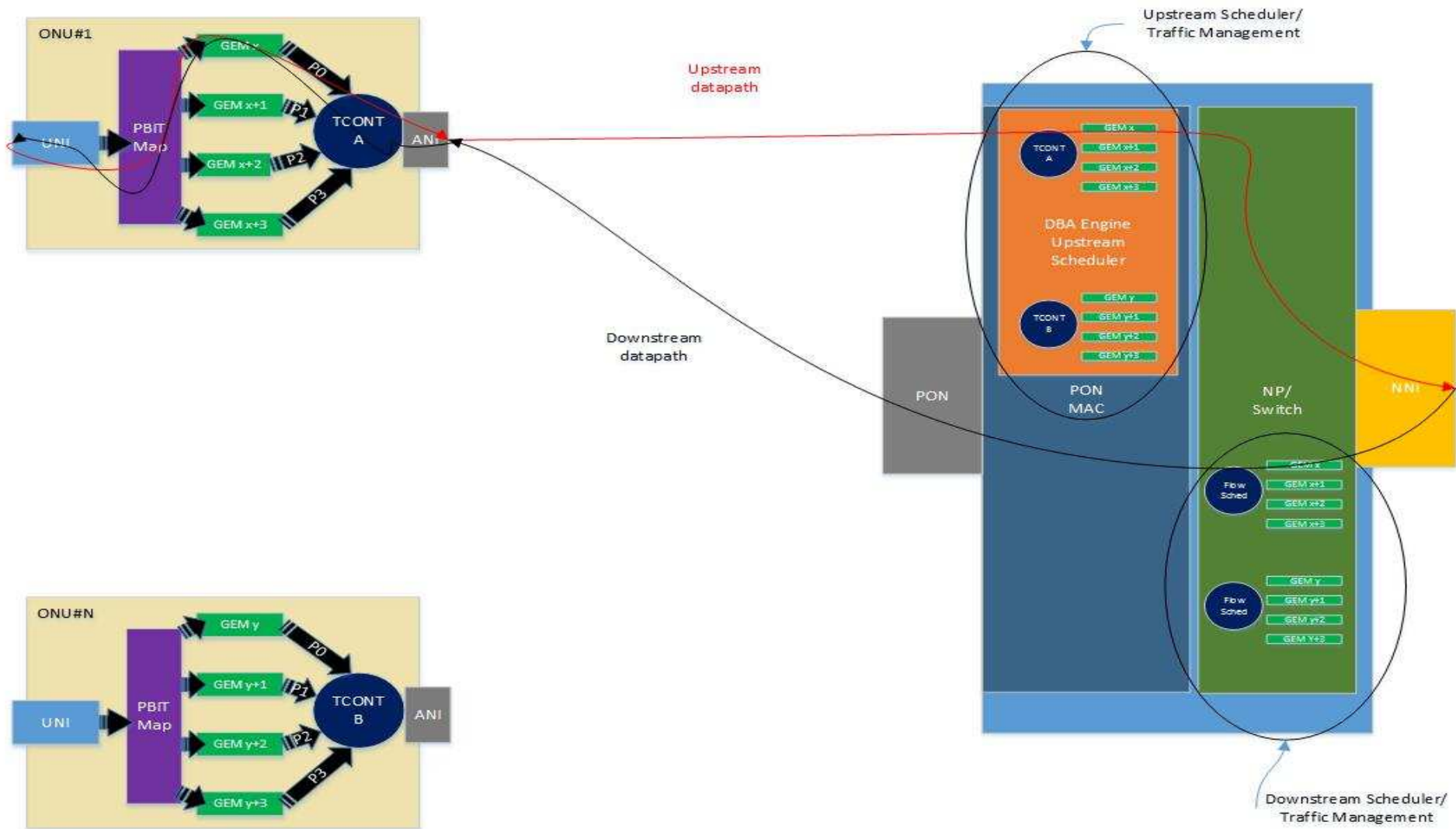
gem_port create -n "Gemport 1" -r "Enet UNI 1" -c 2 -a true -t "TCont 1"

```

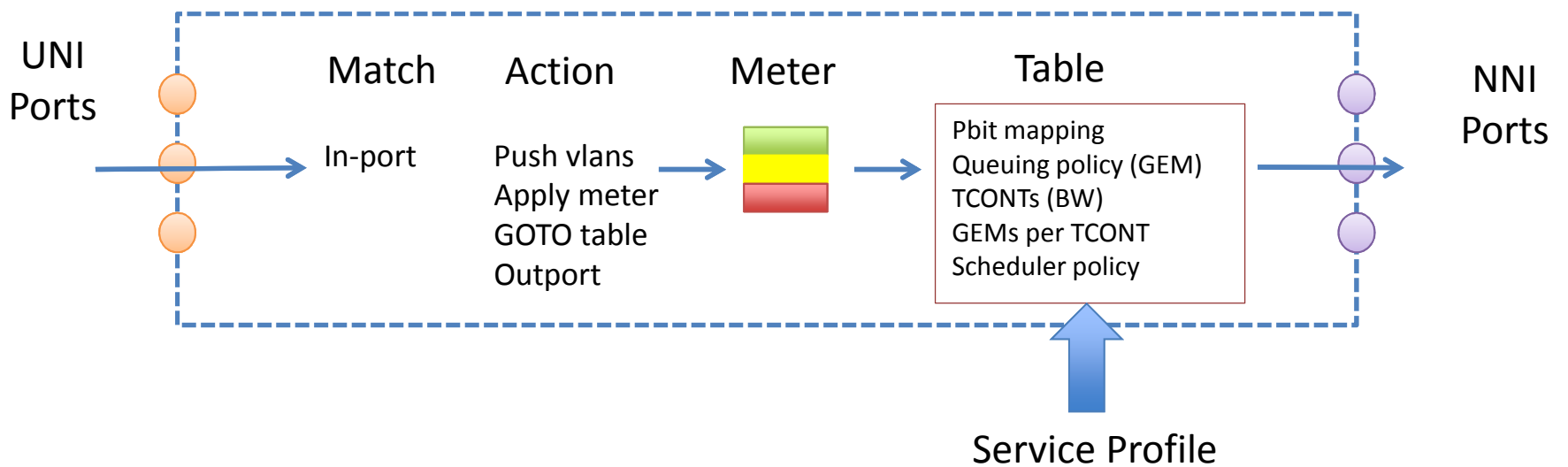
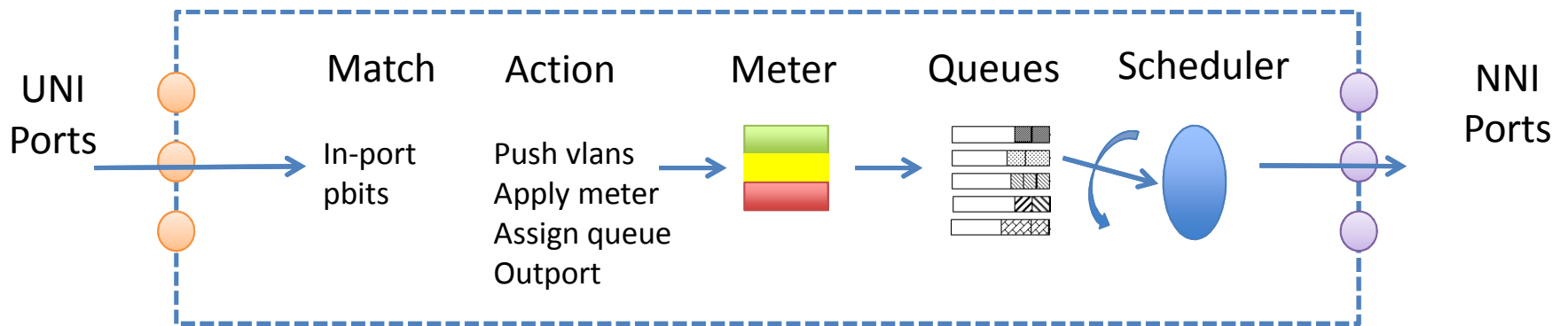


Abstraction: PON as a Quasi-Ethernet Switch





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Data Service QoS Model

AT&T Data Service QoS Model:

Service GEM	Traffic Class	Priority Queue	PBIT	Scheduling Policy	Upstream Weight	Downstream Weight	Traffic Type			
GEM4	TC6	Q1	Service GEM	Traffic Class	Priority Queue	PBIT	Scheduling Policy	Upstream Weight	Downstream Weight	Traffic Type
GEM3	TC4	Q2								
GEM2	TC2	Q3	GEM8	TC7	Q0	7	Strict Priority	N/A	N/A	?
			GEM7	TC6	Q1	6	Strict Priority	N/A	N/A	?
GEM1	TC0	Q4	GEM6	TC5	Q2	5	Strict Priority	N/A	N/A	?
			GEM5	TC4	Q3	4	Strict Priority	N/A	N/A	?
			GEM4	TC3	Q4	3	Strict Priority	N/A	N/A	?
			GEM3	TC2	Q5	2	Strict Priority	N/A	N/A	?
			GEM2	TC1	Q6	1	Strict Priority	N/A	N/A	?
			GEM1	TC0	Q7	0	Strict Priority	N/A	N/A	?

DT Data Service QoS Model:

Service Profile

- It is common for Operators to use Profiles
- Avoid many instances of the same Profile with slightly different bandwidth needs (especially with XDSL lines),
- Overrides for the Bandwidth attributes are used with OpenFlow Meters

Service Profile Identifiers

1. Name: '4QueueHybridProfileMap1'
2. OF Table ID: 64
3. Profile Type: XPON
4. Profile Version: 0.1

Common Instance Control

1. ONU: Single/Multi: Multi-instance
2. UNI: Single/Multi: Single-instance
3. # GEM Ports(Queues): 4

U/S Scheduler

1. T-CONT; Fixed R_F : 256 Kb/s
2. T-CONT; Priority : 0
3. T-CONT; Weight : 0
4. Q Sched. Policy : Hybrid

D/S Scheduler

1. Priority : 0
2. Weight : 0
3. Q Sched. Policy : Hybrid

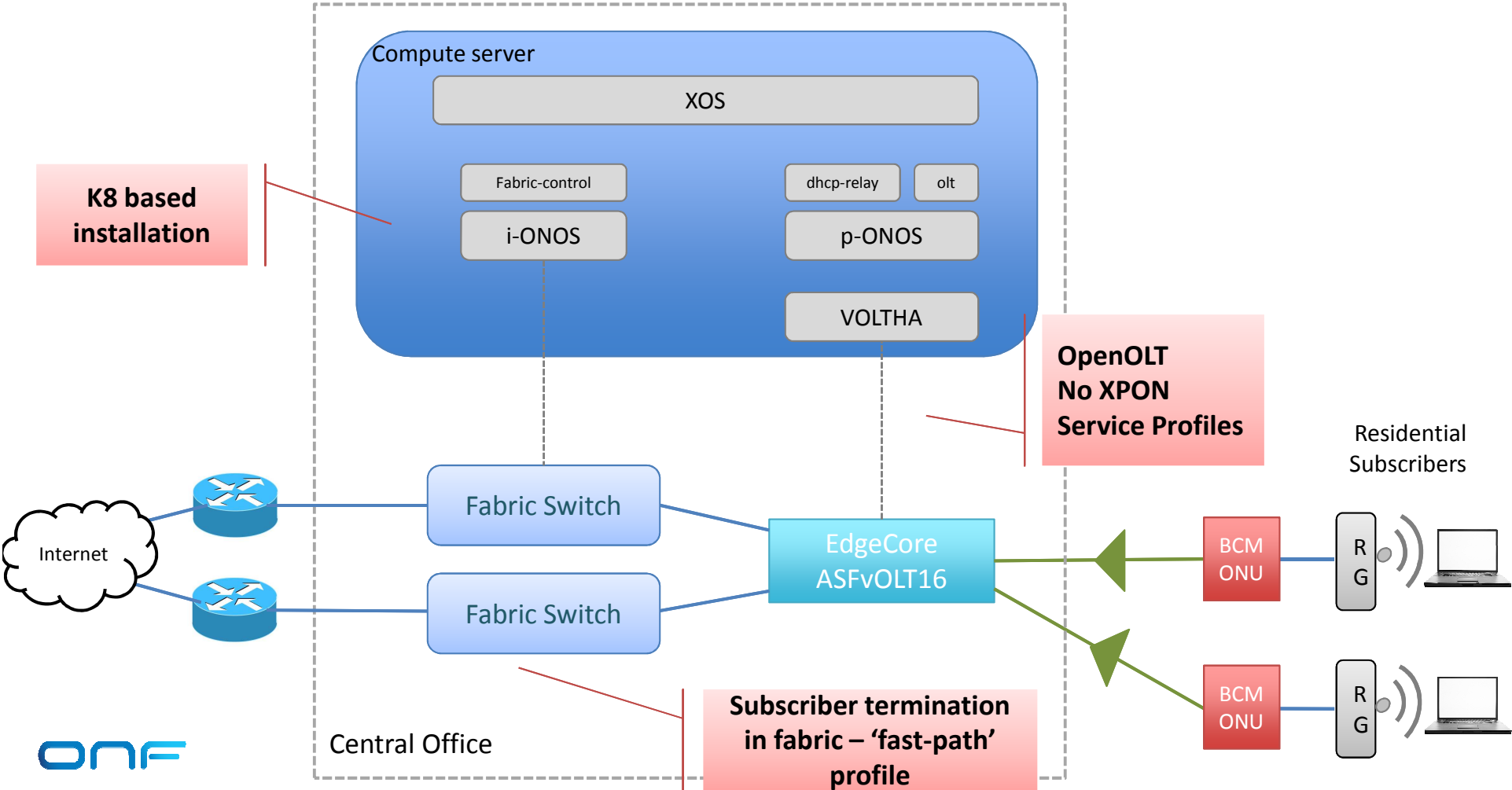
U/S GEM Config & Sched Attributes

1. GEM-1 Attributes:
P-Bit Map : PBit Mask (00000101), PBits 0 and 2
AES Encryption : True
Scheduling Policy: WRR, Discard Policy : tail-drop
Priority : 0, Weight : 25%,

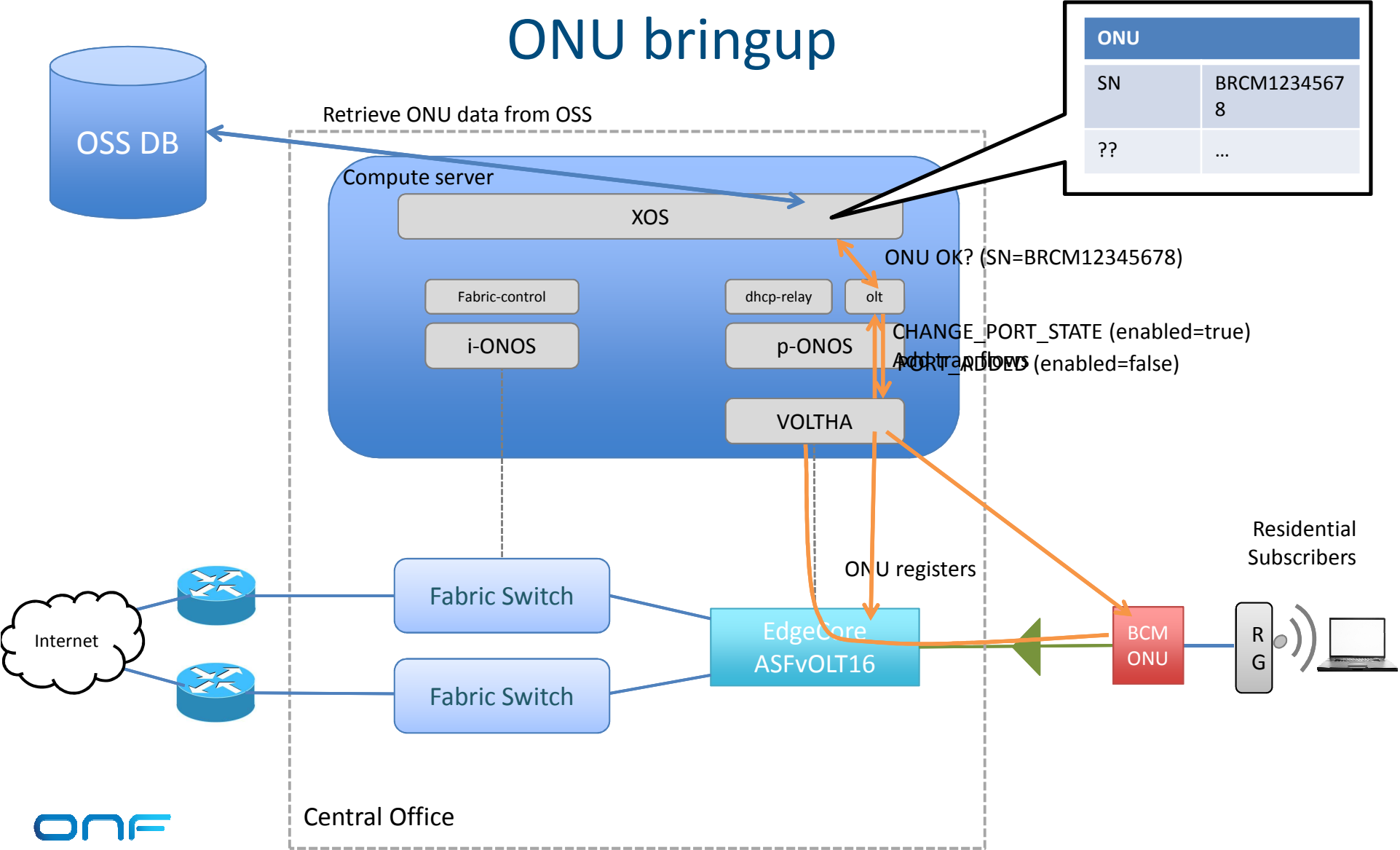
D/S GEM Config & Sched Attributes

1. Q-1 Attributes:
P-Bit Map : PBit Mask (00000101), PBits 0 and 2
AES Encryption : True
Scheduling Policy: WRR, Discard Policy : tail-drop
Priority : 0, Weight : 10%,

R-CORD Changes



ONU bringup

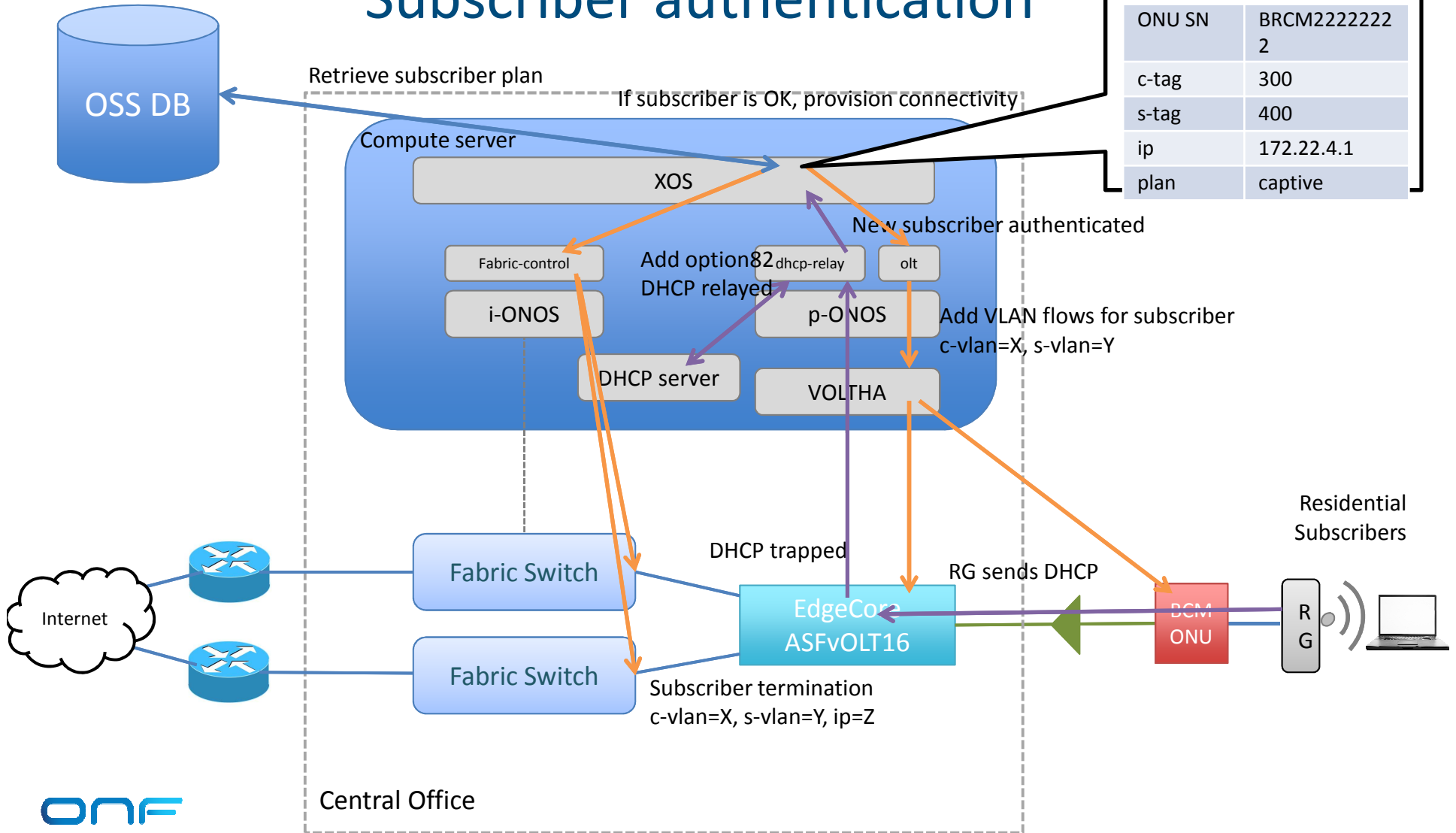


ONU	
SN	BRCM12345678
??	...



Subscriber authentication

Subscriber	
ONU SN	BRCM2222222
	2
c-tag	300
s-tag	400
ip	172.22.4.1
plan	captive



Thanks!

Saurav Das, ONF

Shad Ansari, ONF

Jono Hart, ONF

Shaun Missett, Radisys

Kim Kempf, Radisys