

Virtual CPE Deployment Considerations

(draft-pularikkal-virtual-cpe-00)

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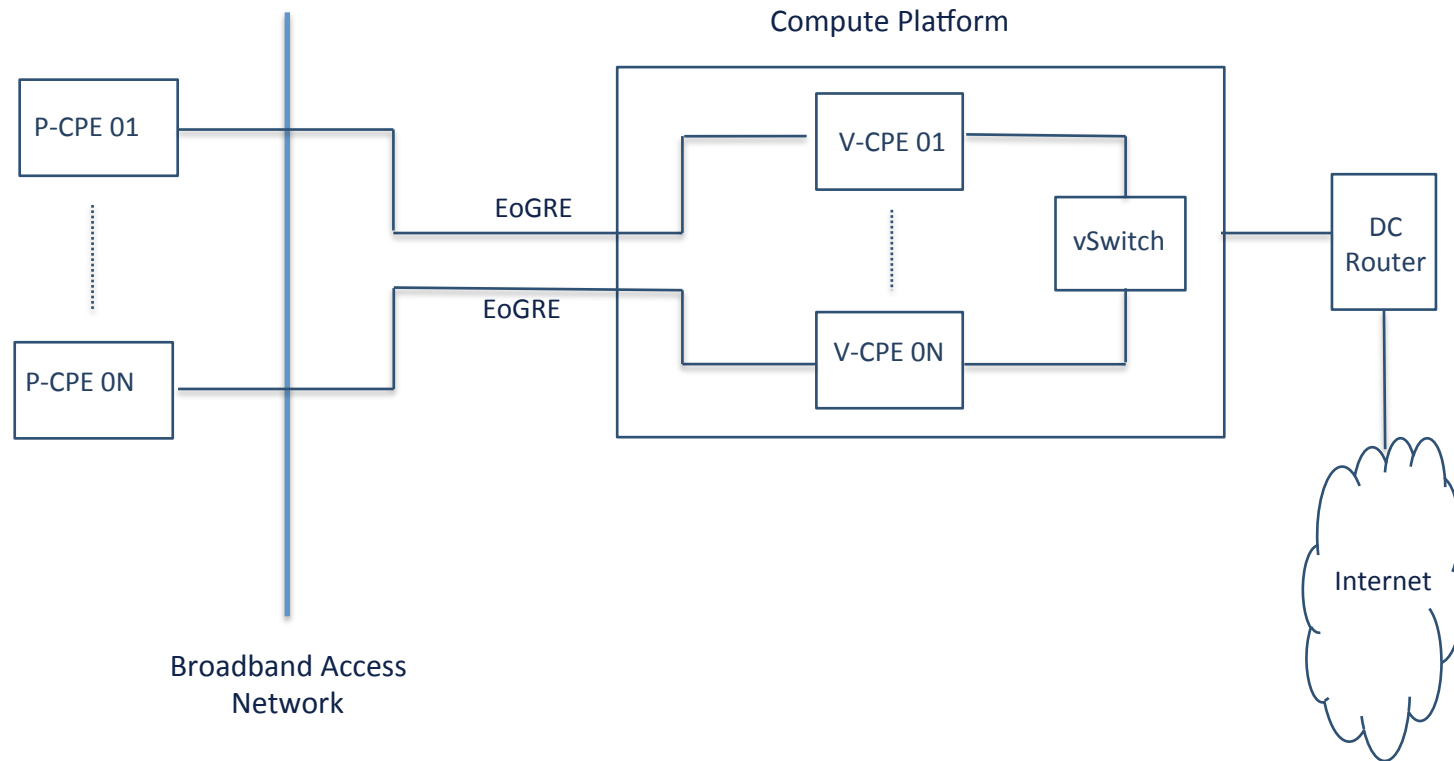
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Draft Objectives & Scope

- Act as a reference material for vCPE based Architectures
- Document generic solution requirements for vCPE
- Cover key deployment considerations for vCPE models
- Leverage FPC interface for the Split CP-DP based Model

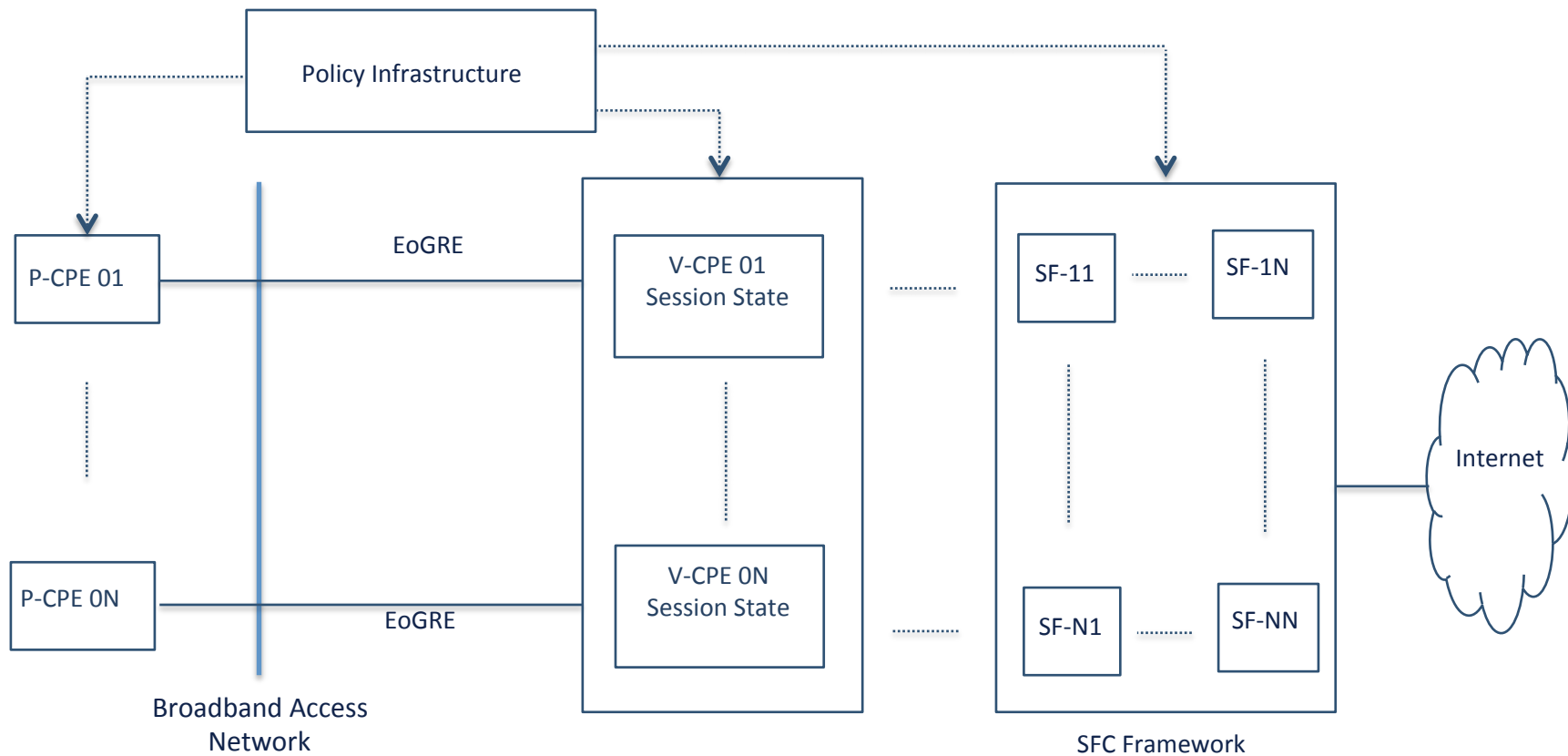
ARCHITECTURE MODELS

Architecture Model -01



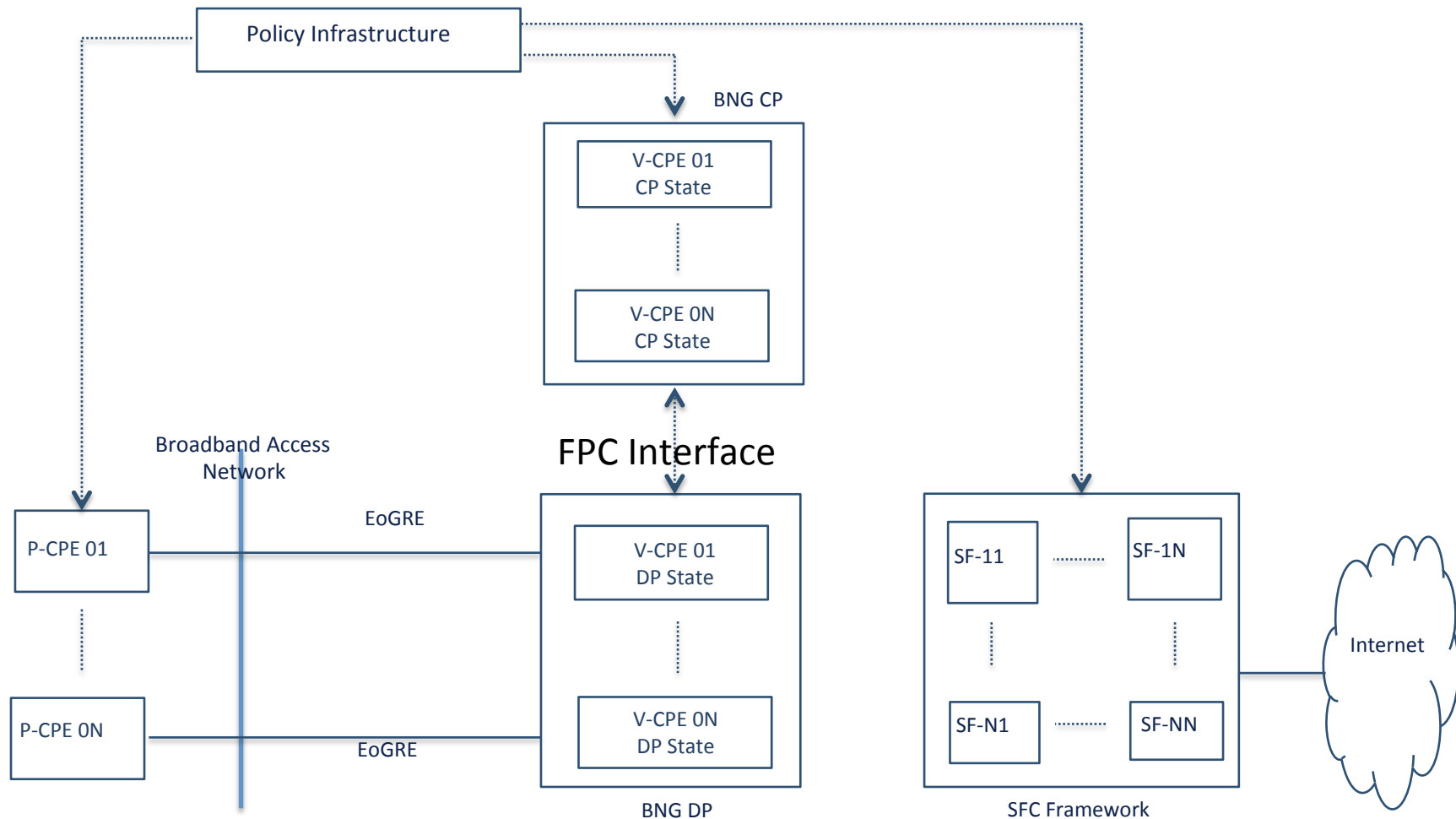
- One to one mapping between P-CPE and Cloud based V-CPE Instance
- Dedicated cloud instance per physical CPE
- V-CPEs run on micro VM instances
- V-CPEs running on Micro VMs responsible for all feature processing

Architecture Model -02



- V-CPEs represented by a representational state tagged to a virtual port on BNG
- A CPE in run state to have at least one tunnel established between P-CPE & BNG
- Basic features performed by the BNG
- SFC framework for implementation of supplementary feature functions

Architecture Model -03



- Introduces Control Plane Data Plane Separation for the V-CPE
- V-CPE CP is representational state on BNG-CP
- V-CPE DP is a representational state on BNG-DP
- FPC interface is used by BNG-CP to program the Forwarding plane features for a V-CPE on BNG-DP

FPC Capabilities required

- Currently defined attributes can be used for PMIPv6 based access for vCPE
- New attributes needed for Layer-2 access tunnels:
 - ✧ Definition of punt path rule (for DHCP, ARP, ND packets)
 - ✧ Layer 2 pass through property for virtual ports

'Some' of the FPC Attributes needed for V-CPE with Split CP-DP

Attribute	Description	Availability
PROP_TUN	Tunnel Encapsulation Type	Defined in the current FPC draft
PROP_GW	Default Gateway IP Address for Client traffic	Defined in the current FPC draft
PROP_NSH	Add NSH Header	Defined in the current FPC draft
PROP_PUNT	Default next hop for punt action of known traffic class	NOT defined in the current FPC draft
PROP_L2PASS	Layer-2 pass through for the matching traffic to the specified next hop	NOT defined in the current FPC draft
PROP_QOS_GBR	Guaranteed bit rate for a port or port group	Defined in the current FPC draft
PROP_QOS_MBR	Maximum bit rate for a port or port group	Defined in the current FPC draft
PROP_DROP	Drop the IP Packet	Defined in the current FPC draft
PROP_DROP_L2	Drop the L2 Packet	NOT defined in the current FPC draft

'Some' of the FPC Attributes needed for V-CPE with Split CP-DP –Contd..

Attribute	Description	Availability
MONITOR	Monitor ID attribute	Defined in the current FPC draft
REPORT_CONFIG	Type of report and and type specific config	Defined in the current FPC draft
PERIODIC_CONFIG	Report Interval for periodic report type	Defined in the current FPC draft
THRESHOLD_CONFIG	Threshold values for report type threshold	Defined in the current FPC draft
EVENTS_CONFIG	List of events that trigger the monitor	Defined in the current FPC draft

Conclusions & Next steps

- Request for more reviews and feedback from community
- Request for adoption call after the reviews