

I E T F[®]

Dimensioning considerations for DMM

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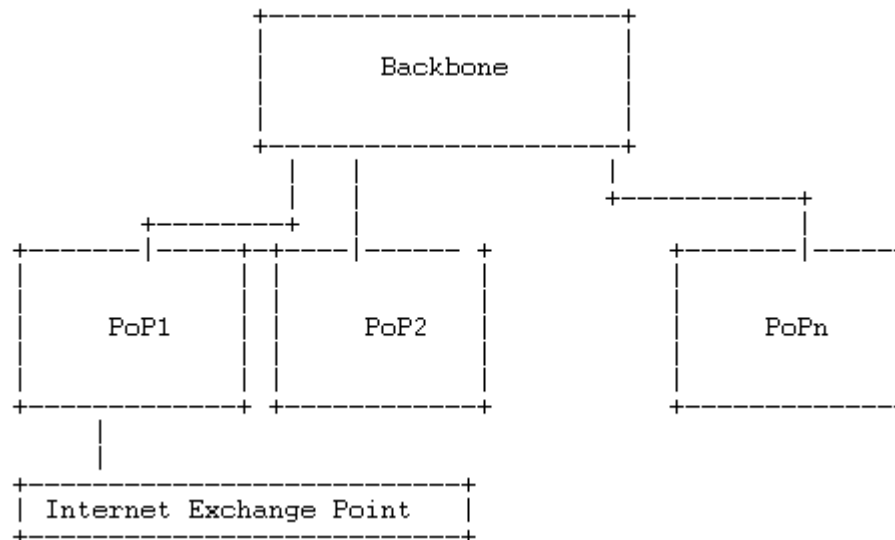
DMM WG, March 2012

Scope

- Evaluation of possible economic benefits for the operator to deploy a dmm-based architecture
- First comparison, even if in a simplified scenario, between a centralized and a distributed model

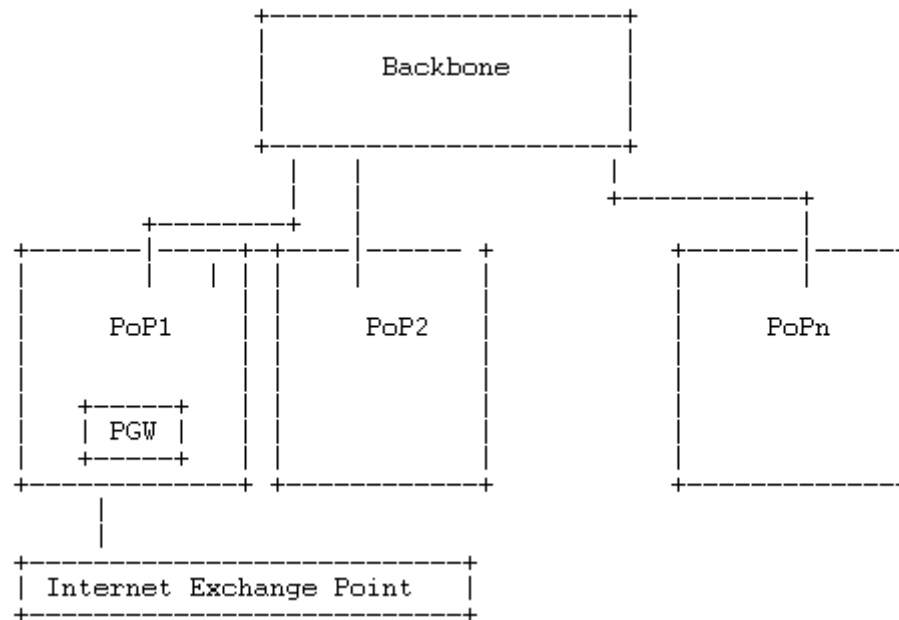
Network topology (starting point)

- The network is made by different PoPs each one directly connected (single hop) to the backbone
- Only one PoP gives access to the Internet (internet exchange point)
- It is a very simple model
- Extensions/enhancements will be considered for next versions of the draft



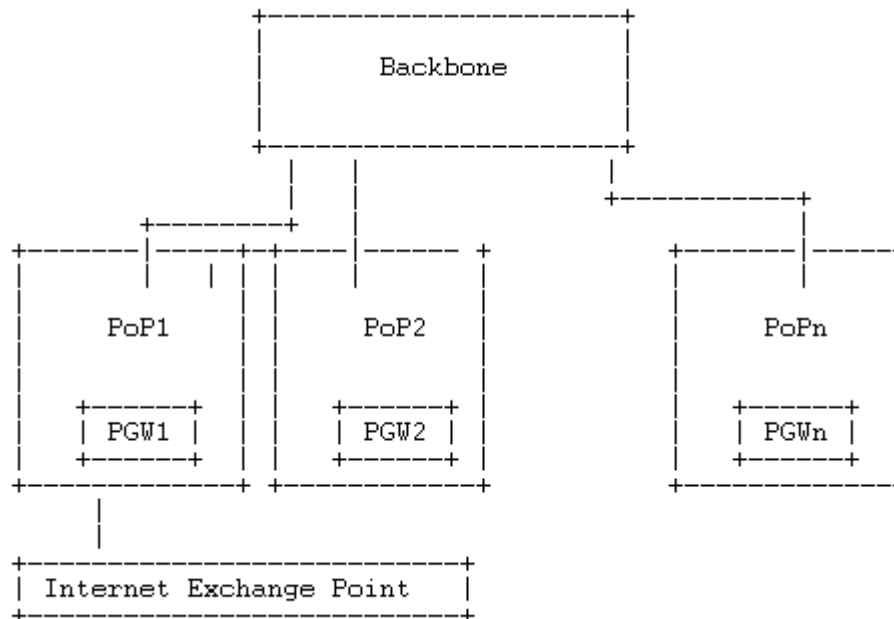
The centralized scenario

- In the centralized scenario the PGWs are located only in the PoP where the Internet exchange point is located.



The (selected) distributed scenario

- Different distributed scenarios may exist but we consider the one in which each PoP is equipped with a PGW



The formulas

- Centralized scenario:
- $\sum_{i=1}^{n-1} (2 \cdot 2^{10} \cdot \text{cost_link} \cdot \text{Internet_Traffic_PoP}_i) +$
- $\sum_{i=1}^{n-1} (4 \cdot 2^{10} \cdot \text{cost_link} \cdot \text{Local_Traffic_PoP}_i) +$
- $\text{cost_PGW} (\sum_{i=1}^n (\text{traffic_PoP}_i))$

- Distributed scenario:
- $\sum_{i=1}^{n-1} (2 \cdot 2^{10} \cdot \text{cost_link} \cdot \text{Internet_Traffic_PoP}_i) +$
- $\sum_{i=1}^n (\text{cost_PGW}(\text{traffic_PoP}_i))$

Results

- Not an always-valid model but, based on traffic distribution, one model can be more convenient than the other
- What makes the difference is the percentage of traffic local to the PoP
 - If sufficient traffic is exchanged internally to the PoP there is no need to transport it to the exchange point so that the distributed scenario becomes more convenient
 - On the opposite side, if all the traffic generated by the customers is directed to the internet the difference between the two scenarios reduces and there is no convenience to have a local PGW when the traffic must however be transported to the exchange point

Questions?