

# **Elasticity VNF**

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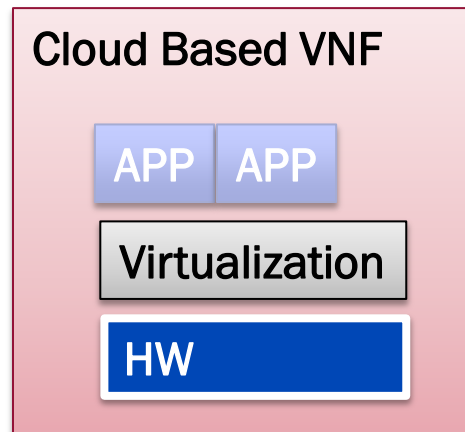
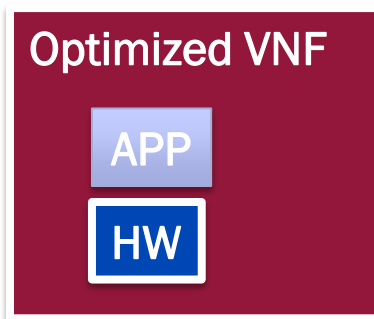
draft-zu-nfvrg-elasticity-vnf

# AN NFV transformation has started

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Yesterday

Today



**Lower costs for running and deploying existing products**

**Networks and cloud separated**

**Mostly OTT Services**

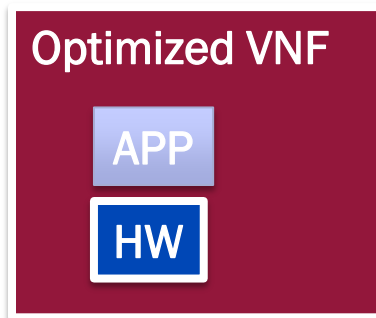
**Telco vendors starts to port legacy applications onto DC Clouds**

**Scale: 10-1000 nodes**

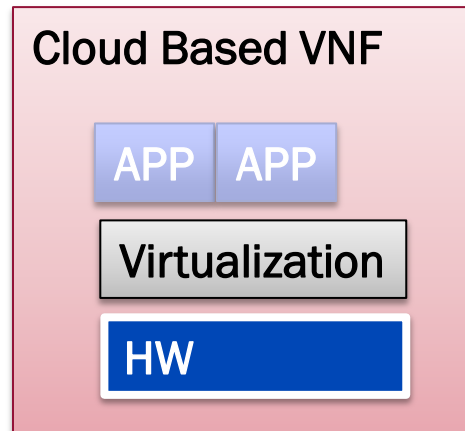
# AN NFV transformation has started

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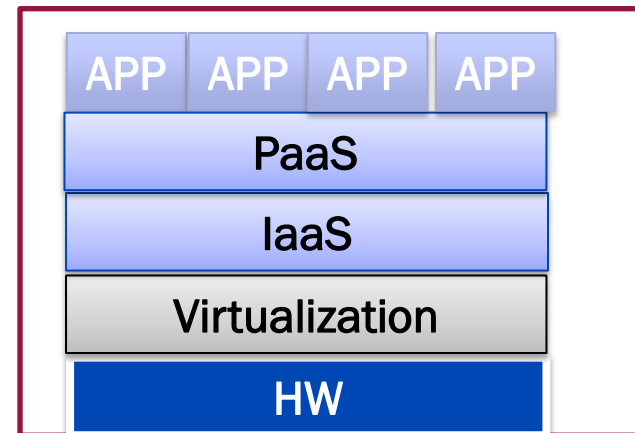
Yesterday



Today



Tomorrow



Real time, low latency and high reliability application capabilities.

Mission Critical Applications on cloud.

Pervasive computing – the network is the computer and everything, down to end user devices, participate.

Scale: 1M+ nodes, 500B devices

Private/Public clouds for industry automation and real-time control

Cloud and Network interacting as one platform for service innovation

# Telecom Network Functions Migration

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- Moving the control plane, data plane and service network into a cloud based network
- Using cloud based protocol to control the data plane.
- Service continuity, network security, service availability, resiliency, SLA in both control plane and data plane must be ensured at this migration
- However, moving the legacy telecom applications into a cloud network is not virtualization.

# Are we ready yet?

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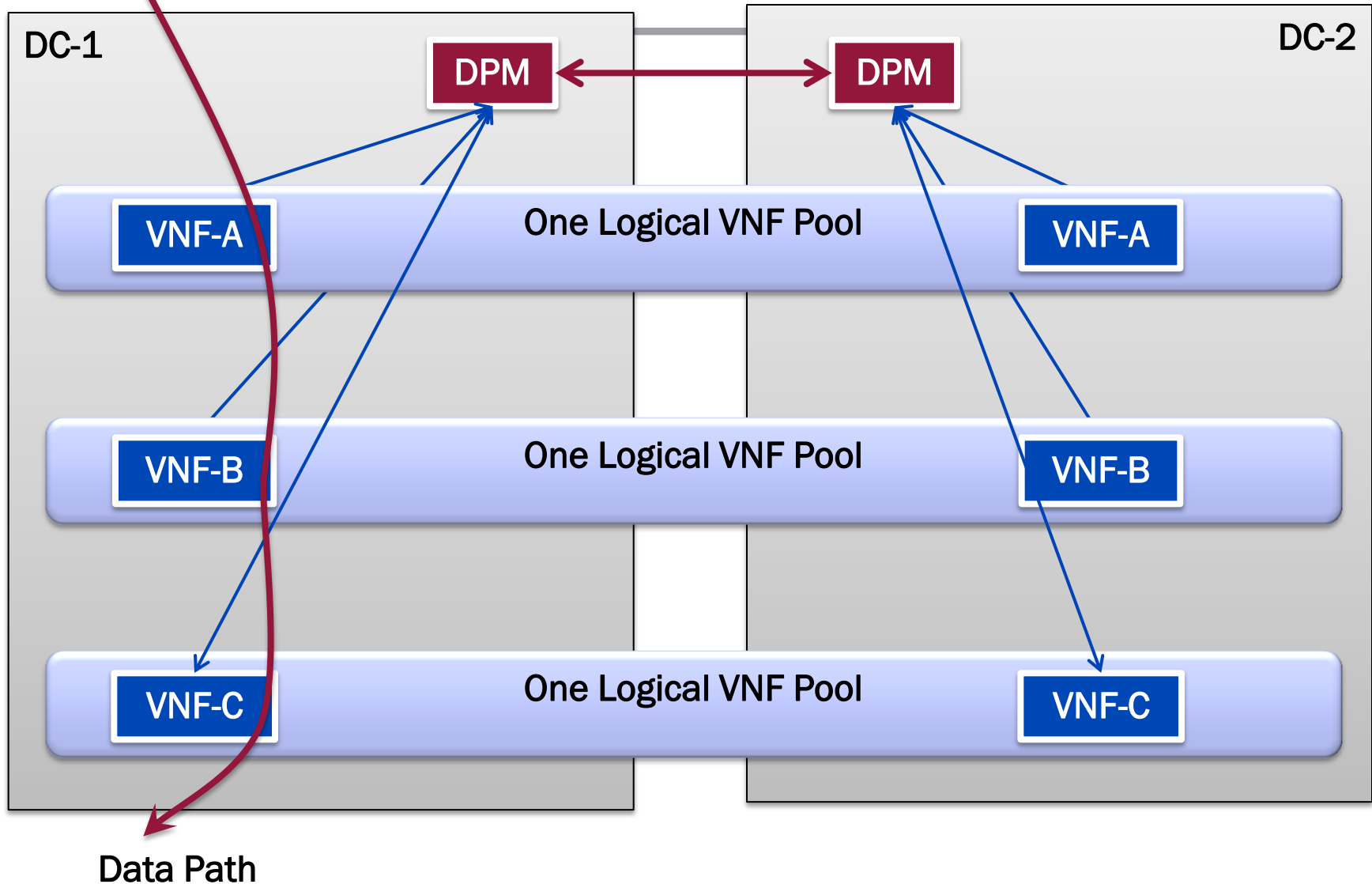
- Most of the NFV functions are
  - Larger size stateful function
  - running on either specific hardware or a big VM
  - not designed to tolerate any system failure in many VMs.
  - very difficult in term of configuration, scale updating, etc.
- Re-engineering may be needed
  - Adaption for software and hardware decoupling.
  - Smaller size stateless function
  - running on small VMs with multiple instances which can provide higher application availability.
  - Dynamic scaling can be achieved by adding more VMs into the system.

# Elasticity VNF

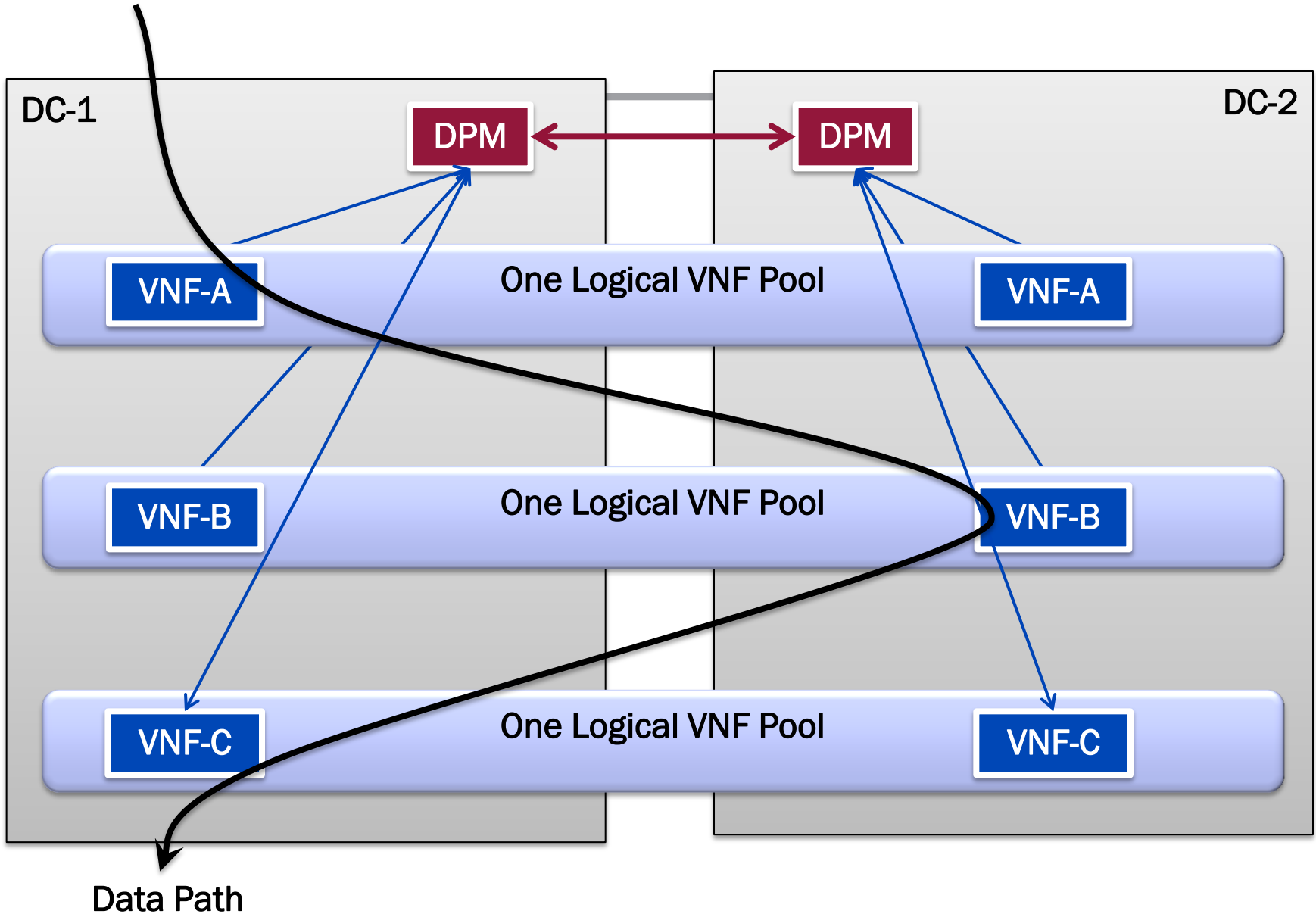
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- A service session may traverse multiple stateful and stateless VNF functions
- Predictable performance with low-latency VNF is expected
- Reliability: a must requirement for NFV network. some kind high availability solutions may be needed, which has the potential to minimize the service downtime at failure
- Security is also critical

# Predictable performance

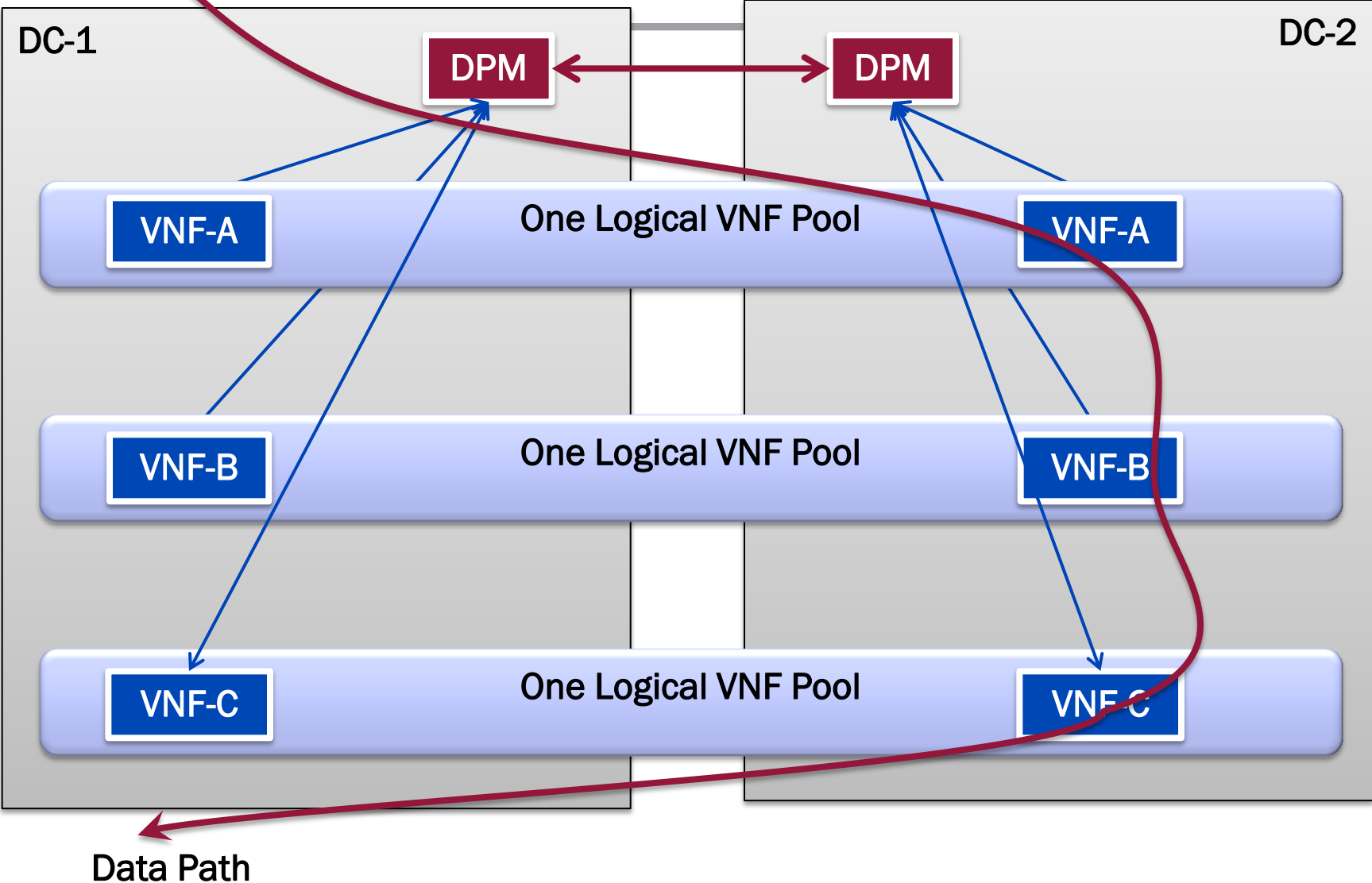


# Predictable performance





# Predictable performance



# Next Step

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- More details on what is needed for elasticity  
VNF
- Thanks