

# A Reference Framework for DC Migration to IPv6

draft-lopez-v6ops-dc-ipv6

IETF84 – v6ops

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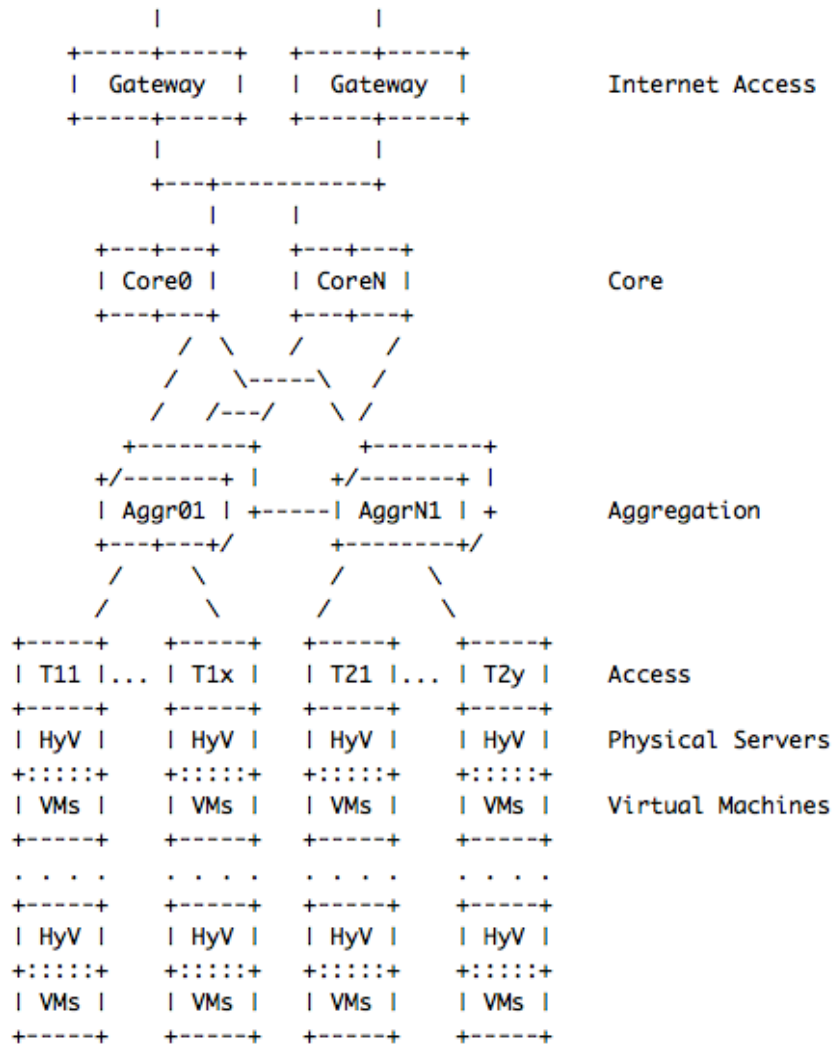
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# Reference Framework for IPv6 in DCs

- Scheme for evaluating different products and architectures
  - Addressed to DC operators and tenants
  - And to manufacturers and solution providers
- Focused on the DC infrastructure itself
  - Orthogonal to mechanisms for hosted services
- Highlight potential advantages
  - But not a compelling motivation beyond the general one

# A General DC Model

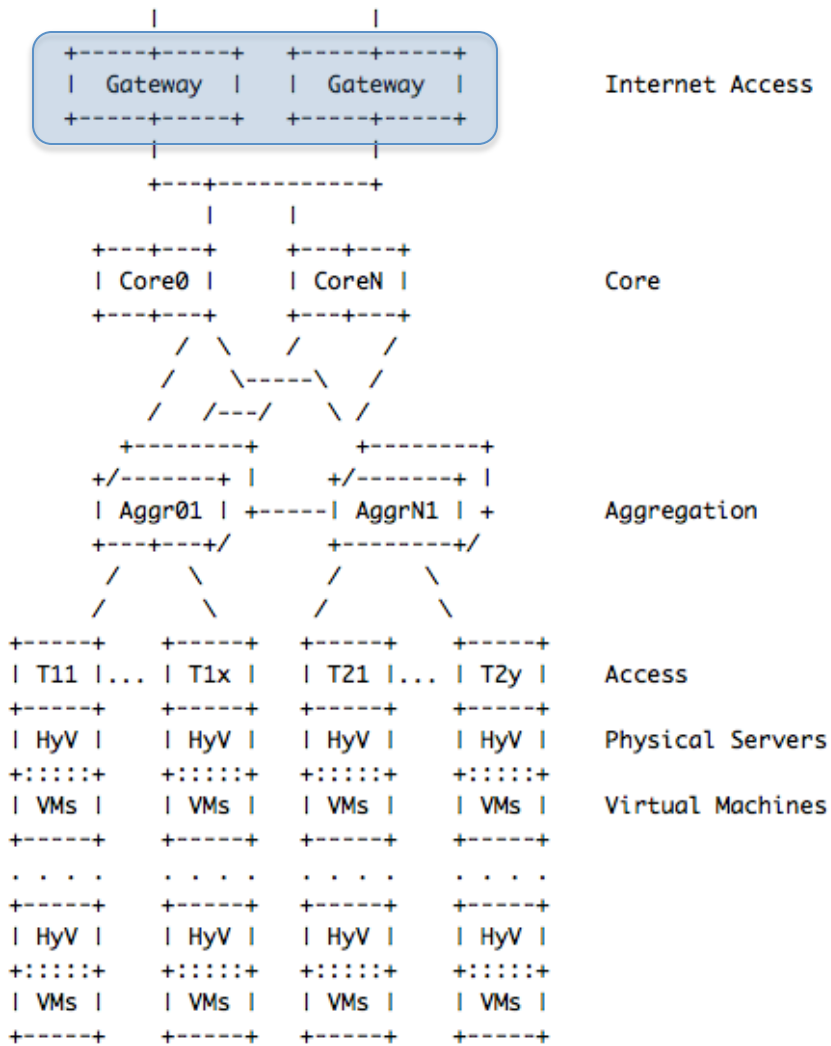


- General model for the reference framework
- Not all layers or elements present in many real deployments
  - Combined
  - Virtualized

# Maturity Levels

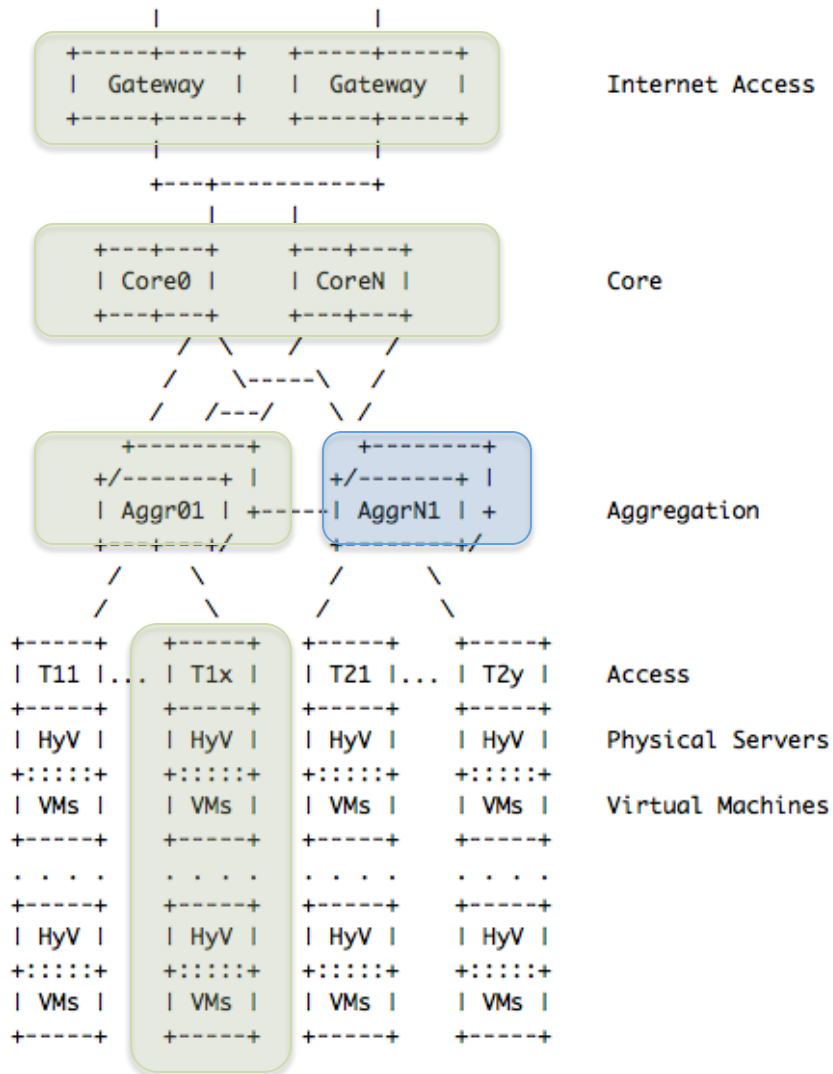
- The framework is structured through three maturity levels
  - Degree of penetration of IPv6 in the infrastructure
- Maturity levels do not imply progression
  - No need to start at level 1
  - No requirement in going from 1 to 2 to 3
- Intended to adapt to different
  - Traffic patterns
  - User and service requirements
  - Risk assessments

# Maturity Level 1



- Native IPv4 infrastructure
  - Gateway routers
  - Application gateways if services require them
- Suitable for off-shore (ISP-based) operation
  - Concerns on the loss of source addresses

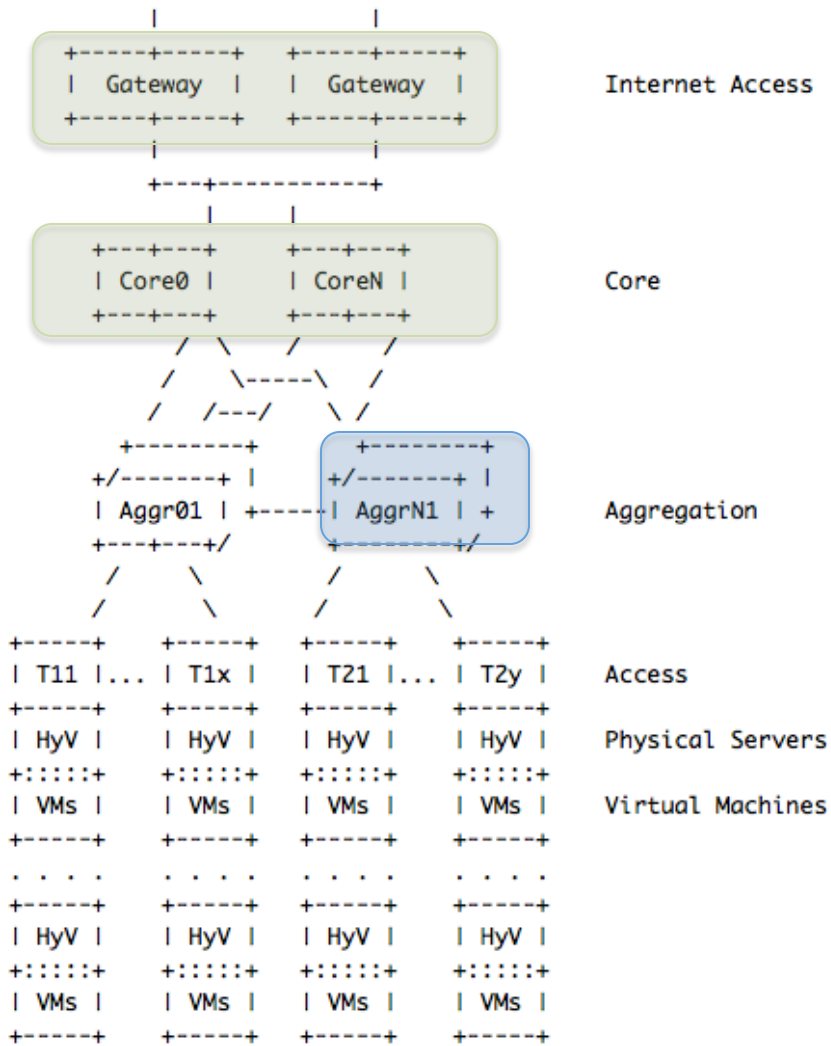
# Maturity Level 2



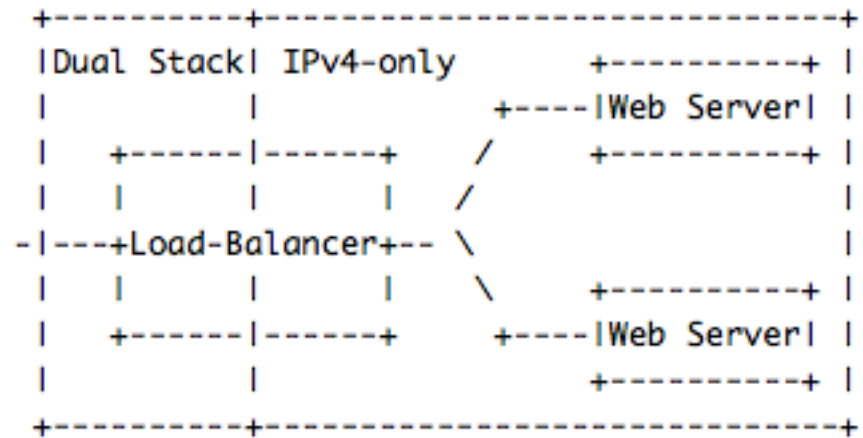
- Internal dual stacks
  - Up to a certain layer in the infrastructure
  - Keep transparency to (non-)migrated elements
- Flexibility with additional complexity
  - Traffic patterns
  - Tenant decisions
  - Partial infrastructure migration

# Maturity Level 2

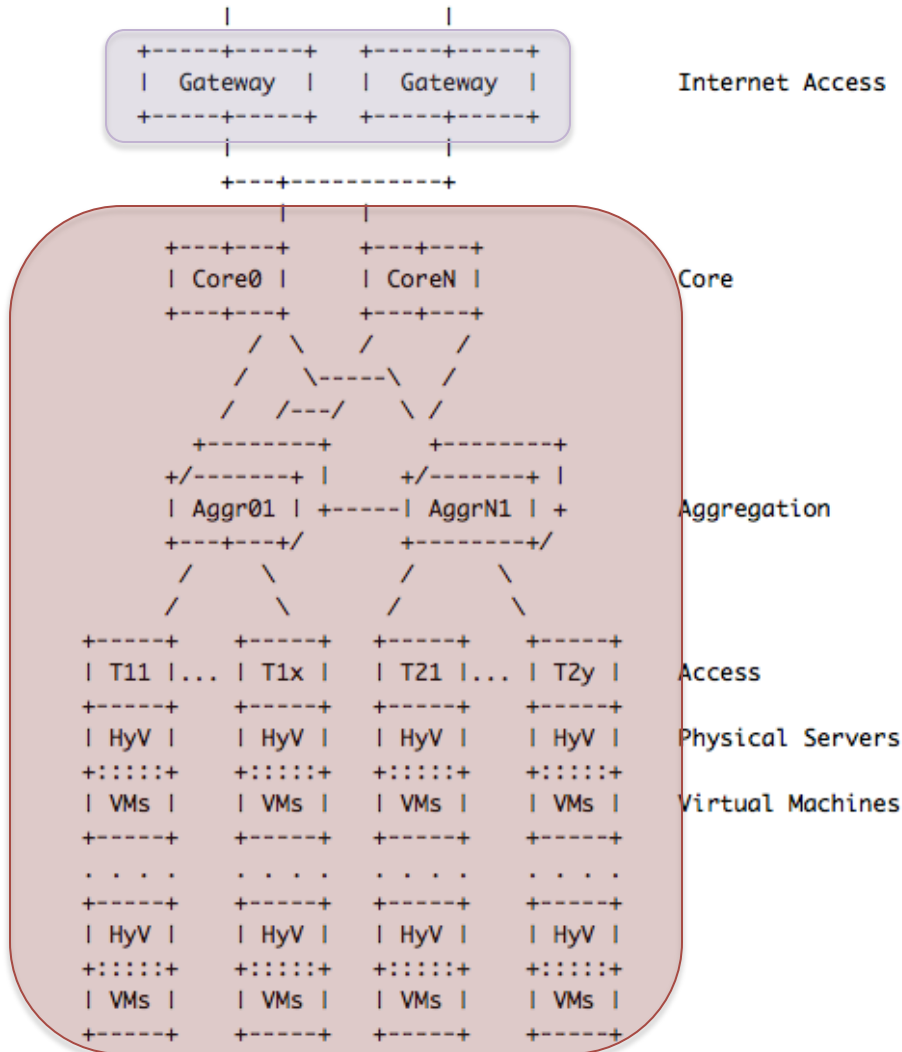
## Dual Stack at the Aggregation Layer



- Take advantage of additional functions at the aggregation element
  - Firewalls
  - Load balancers
  - Overlay edges



# Maturity Level 3



- Native IPv6 infrastructure
  - Converse translation to ML 1
- Suitable for off-shore (ISP-based) operation as well
  - Loss of original source address is not a concern



# The Coming Steps

- Go into more details in some aspects
  - Additional deployment modes
  - Addressing issues
  - Security considerations
  - Traffic and usage patterns
  - IPv6 load balance (NAT66 or Anycast or...?)
- Seek WG adoption