

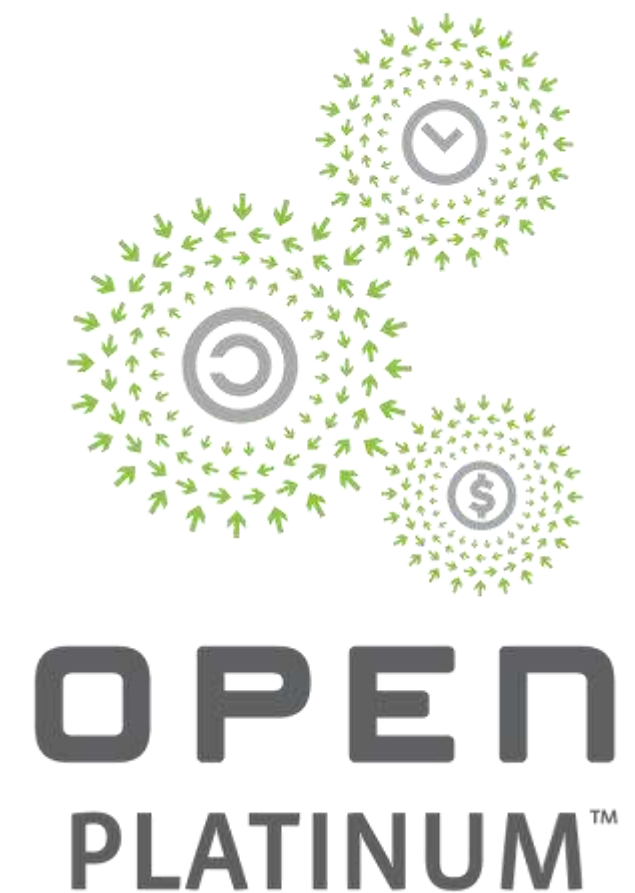
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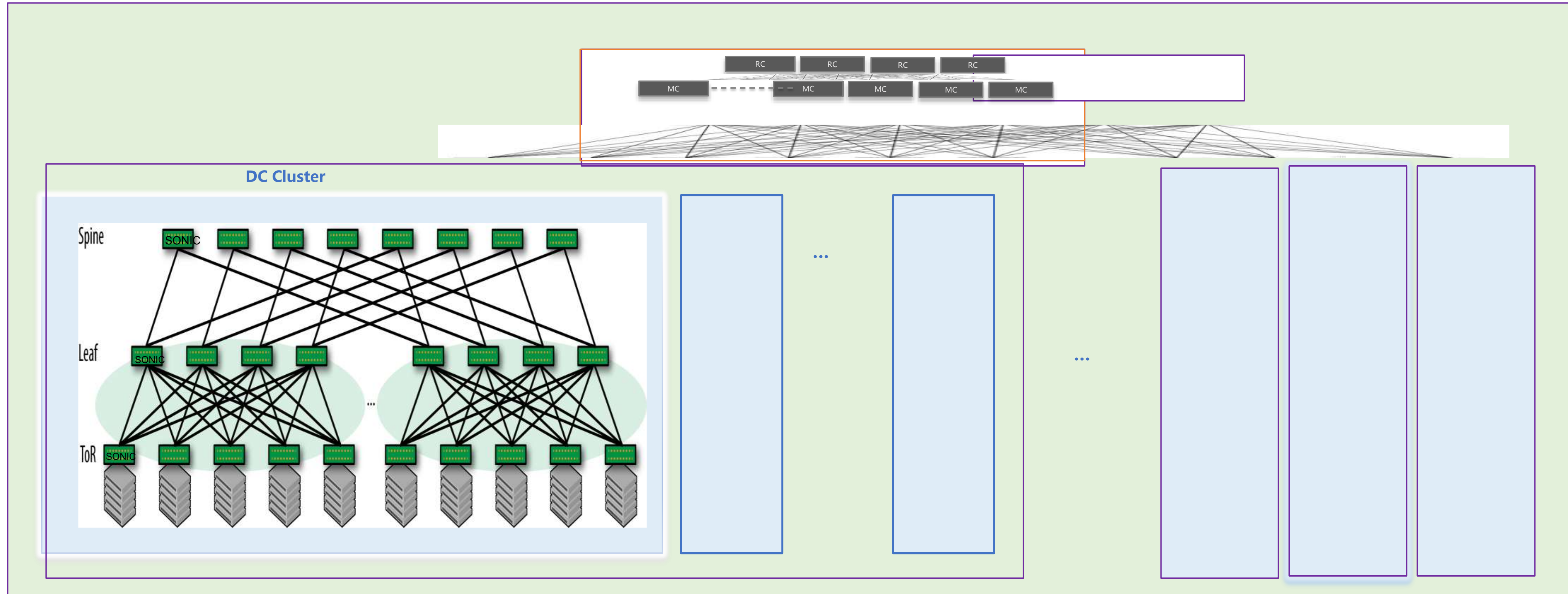
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SONiC Beyond IDC: Rich Features and High Scalability

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SONiC Deployed in IDC



SONIC Deployed in IDC



- ❑ Massive number of switches
 - ❑ Challenging to monitor/manage
 - ❑ Key: to make the boxes as simple as you can!
 - ❑ Scale:
 - ~10K routes, IPv4 + IPv6
 - 100+ BGP neighbors
 - ❑ Features :

ECMP, warm reboot, INT

No IGP, MPLS, Multicas

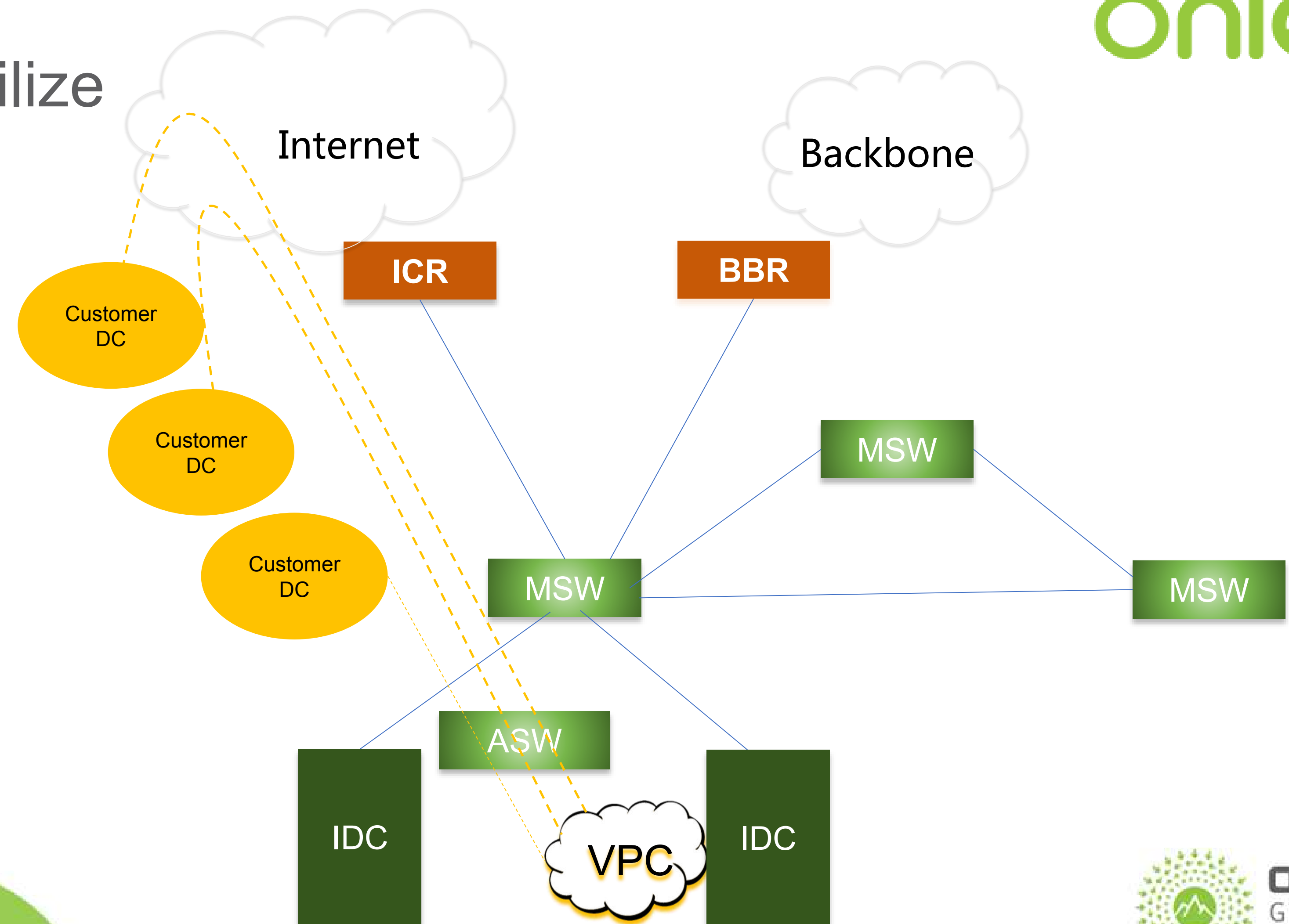


Beyond IDC



Extend SONiC to Utilize
development, testing,
management efforts

- ❑ Access switches
- ❑ Metro switches

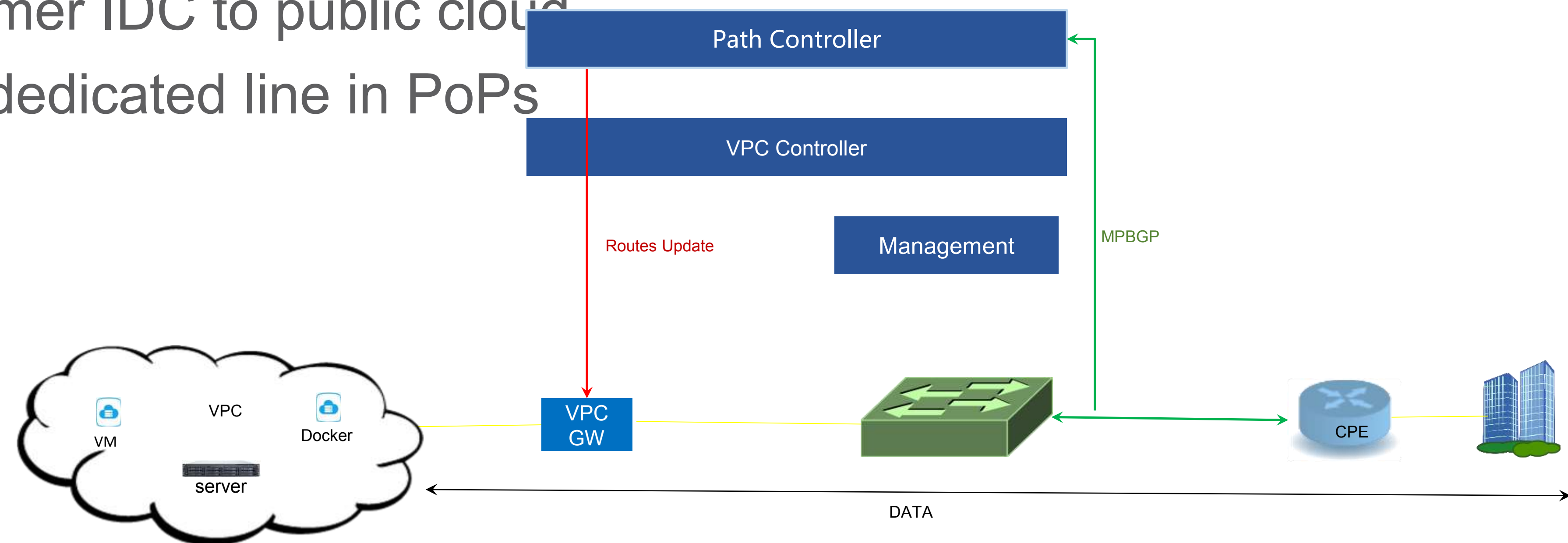


Beyond IDC



Access Switches

- ❑ Connect customer IDC to public cloud
- ❑ Via ISP or via dedicated line in PoPs



Beyond IDC



□ To CPE

Shared line for multiple customers, or one customer with multiple segments

Traffic encapsulated in 802.1Q

VRF on subinterfaces

Dedicated line for customers with high bandwidth demand

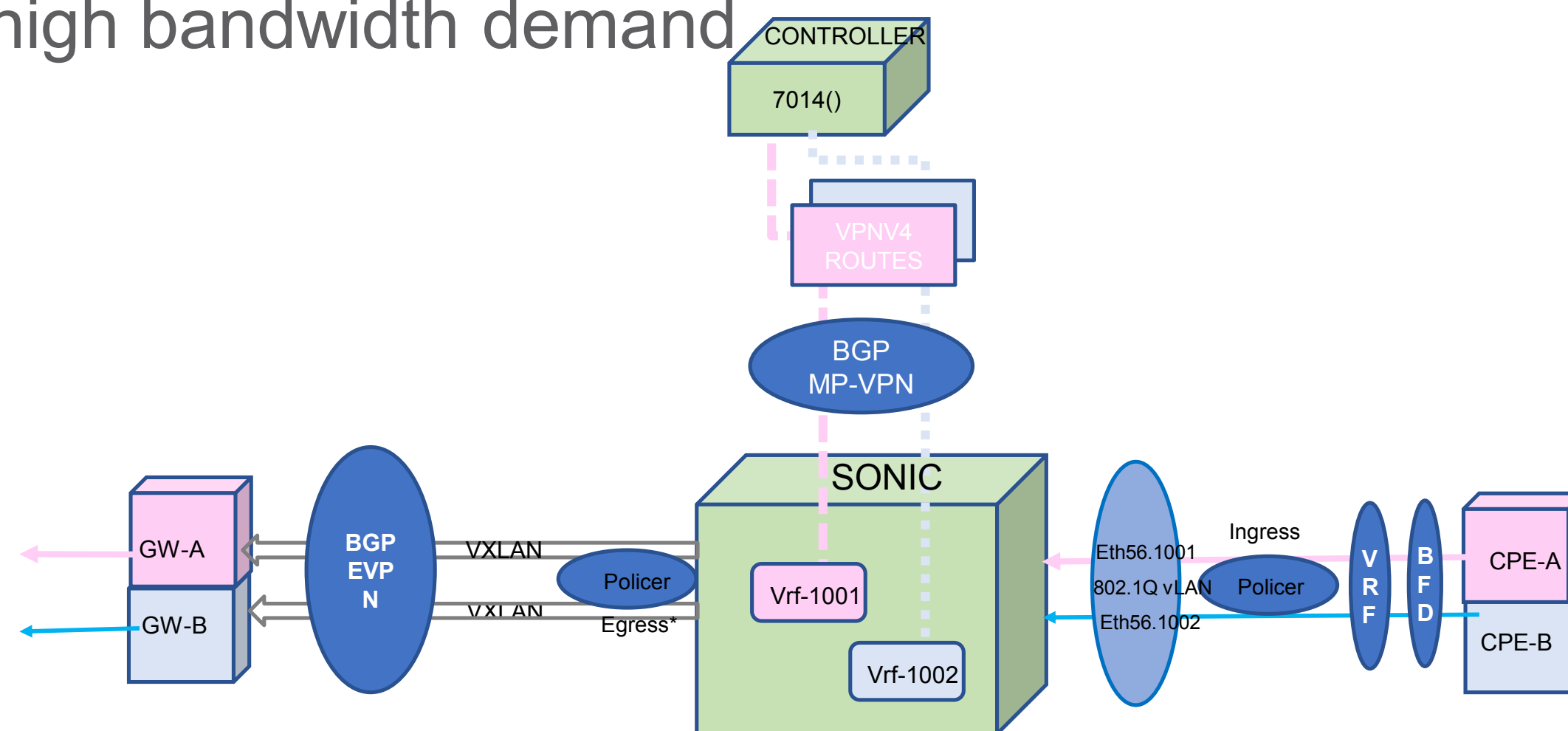
VRF on physical interface

□ To controller

Exchange routes via MP-BGP

□ To GW

VxLAN underlay



Beyond IDC -Features



Bandwidth Management

- Traffic policing to cloud

Ingress:	enforce rate limit based on SLA \$\$\$
Egress:	balance traffic among VPCs
Main interface:	customers with high bandwidth demand
Sub-interface:	sub-leased customers

- Traffic shaping

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"POLICER": {
  "CPE1001_ING": {
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}
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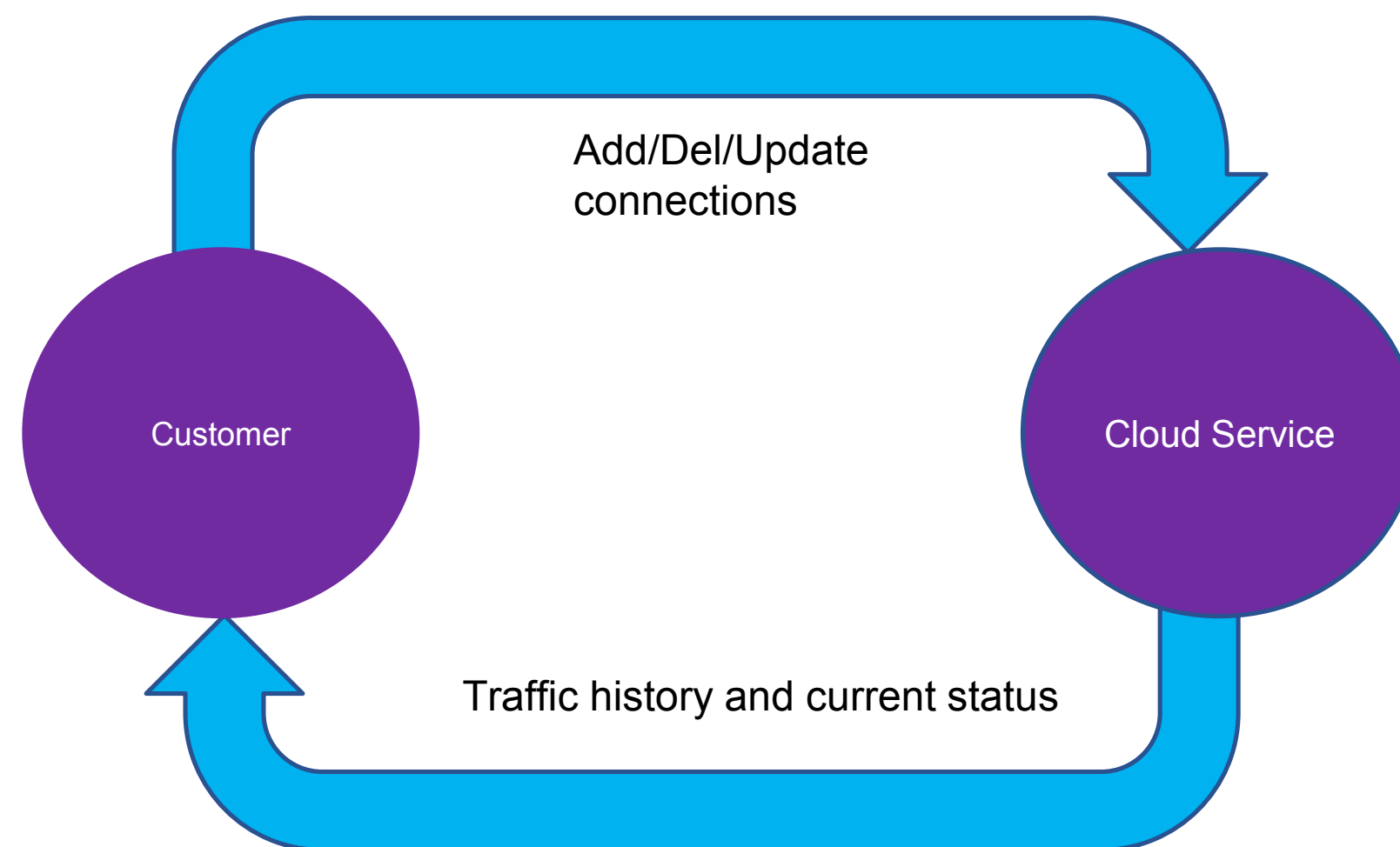


Beyond IDC -Features



Dynamic Configuration Management

- Adjust resource on demand
- No traffic interruption



Beyond IDC -Features



Fast Convergence on non-ECMP

- ❑ BFD
- ❑ BFD dampening
- ❑ Interact with graceful restart, extend IETF BGP dynamic capability

Beyond IDC -Features



- ❑ Controller Involvement:
MPBGP + feedback from monitoring
- ❑ Tunnel to VPC :
eVPN and static co-exist
- ❑ Multicast forwarding



Beyond IDC - Scale

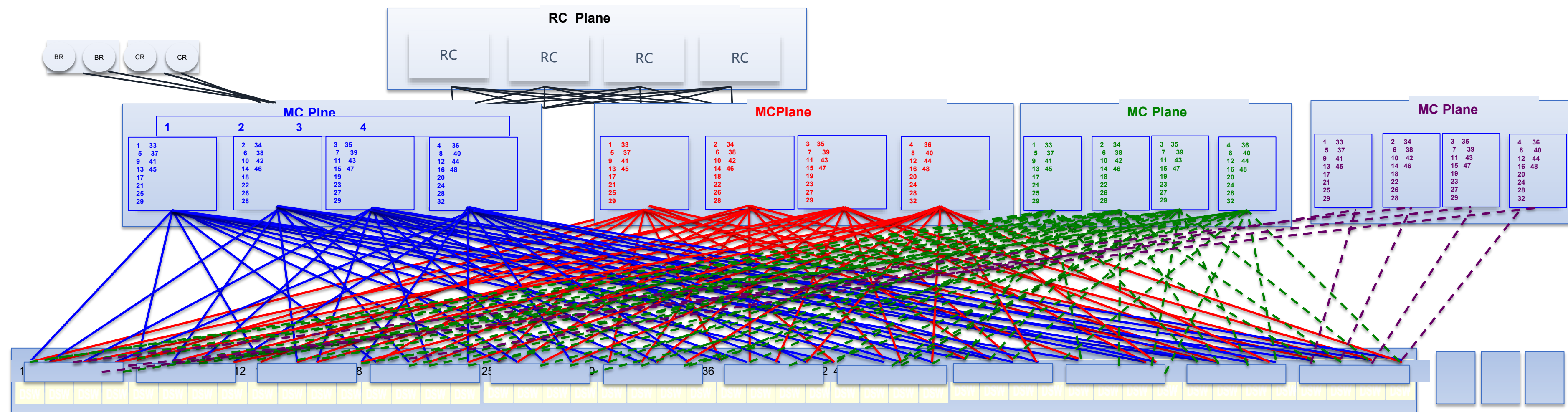


- ❑ Access switches
 - ❑ BGP neighbors: 100 -> 400
 - ❑ BFD sessions: 300ms x 3
 - ❑ Monitoring: periodic status check and event trigger report

Beyond IDC - Scale



- MC switches
 - MC BGP routes: 10k range -> ~100k range
 - MC ECMP paths: $100k * \# \text{ of nexthop}$



SONIC Beyond IDC



- ❑ Leverage the Success of SONIC
 - ❑ Accelerate deployment in IDC
 - ❑ Invest in Unified Networking Management across all areas
 - ❑ Extend SONIC beyond IDC
 - ❑ Rich features
 - ❑ High scalability

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