

BROCADE AND CIENA SOLUTIONS



DATA CENTER

Elastic Compute Resource Allocation and Network Transport

HIGHLIGHTS

- Leverages cloud bursting workload orchestration to dynamically change network topology and computing resources in seconds, increasing flexibility and controlling capital costs
- Enables automatic, dynamic creation and return of resources, across local and remote data centers, to meet changing application demands
- Seamlessly integrates Virtual Machine (VM) creation with network services, helping to ensure adherence to Service Level Agreements (SLAs)
- Maintains separate policies for each application, allowing fine-grained tuning of thresholds and actions

IT organizations and network operators increasingly need to undertake projects to reduce costs and complexity by standardizing, consolidating, and virtualizing infrastructure resources. Many benefits are realized from this process, including better application performance, increased utilization, and cost savings from more efficient use of resources.

To realize these benefits, organizations require a more agile and automated infrastructure—one that not only handles baseline workloads, but also dynamically expands to meet peak conditions when customer demands increase. The ability to automate the deployment of new compute, storage, and networking resources, coupled with the orchestration of workloads in the appropriate physical data center or cloud environment, gives networks the necessary flexibility by provisioning only what is needed, when it is needed.

Dynamic automated provisioning—the ability to automatically spin up new applications as workload conditions demand and deploy them anywhere the resources are available—is a key requirement for fully realizing the benefits of a cloud data center environment. To accommodate an elastic environment such as this, the supporting application delivery services within it and the network must also adapt. Ideally, the goal is not only to provision and de-provision Virtual Machines (VMs), or simply move applications and data around, but also to actively monitor and direct traffic while dynamically managing network resources.

THE BROCADE AND CIENA SOLUTION

Brocade and Ciena have developed a joint solution that leverages Brocade® Application Resource Broker to automate resources between data centers, and Ciena V-WAN to control network transport (see Table 1 for use cases).

Brocade Application Resource Broker and its dynamic resource provisioning capability enable cloud bursting as a hybrid cloud service. Organizations can now burst their local resources footprint to a remote virtualized data center that is either public or private, when demand for computing capacity spikes. Initially, the administrator assigns a burst pool and sets up the relevant rules that govern when to start adding VMs and when to expand the connection to the new resource pool under specified conditions.

As the application load increases and crosses a pre-determined threshold, Brocade Application Resource Broker activates the burst pool in the remote data center. This signals the network to distribute traffic equally within the available resources. Brocade Application Resource Broker configures the Ciena V-WAN REST interface to dynamically increase the bandwidth between the data centers, thus eliminating any network bottlenecks. As demand subsides and conditions return to normal levels, the resources from the burst pool are automatically removed. This automation ensures that organizations only pay for extra compute, network, or storage resources when they are needed, thus reducing the overall cost of the service.

The joint solution enables service providers and enterprises to dynamically change network topology and computing resources in a matter of seconds, in any location. This flexibility eliminates lengthy engineering and purchasing cycles in fixed data center locations. In addition, organizations can use this increased service agility to react quickly to business requests or customer demands, responding in minutes rather than days or weeks. Resources can be expanded or contracted to align with changing conditions, under policy and with security. Finally, the solution also gives organizations the flexibility to deploy the network as a private build, carrier-managed service, or a combination of both.

Table 1. Uses cases for the joint Brocade and Ciena solution.

Use Cases	Brocade Application Resource Broker and Ciena V-WAN Activity
Cloud bursting	Bursts local resources footprint to a remote virtualized data center that is either public or private
Disaster recovery	Seamlessly redirects both new and active users when moving VMs between data centers
Capacity on-demand	Dynamically adds and removes application resources as demand requires

SOLUTION WORKFLOW

Figure 1 provides an example of the solution's workflow. In this scenario, Brocade Application Resource Broker:

1. Responds to increased application traffic by provisioning additional VMs at the primary data center, as per configured policy thresholds.
2. Uses the primary data center until it hits a resource limit, then redirects and uses the burst data center.
3. Interacts with Ciena V-WAN to dynamically create WAN bandwidth for user traffic to the new VMs in the burst data center, gradually increasing transport bandwidth along with each server VM created.
4. Interacts with the Brocade ADX® Application Delivery Switch to load-balance traffic equally between local and burst VMs.
5. Enables policies to shut down VMs and de-provision network bandwidth/resources when the workload decreases below the threshold.

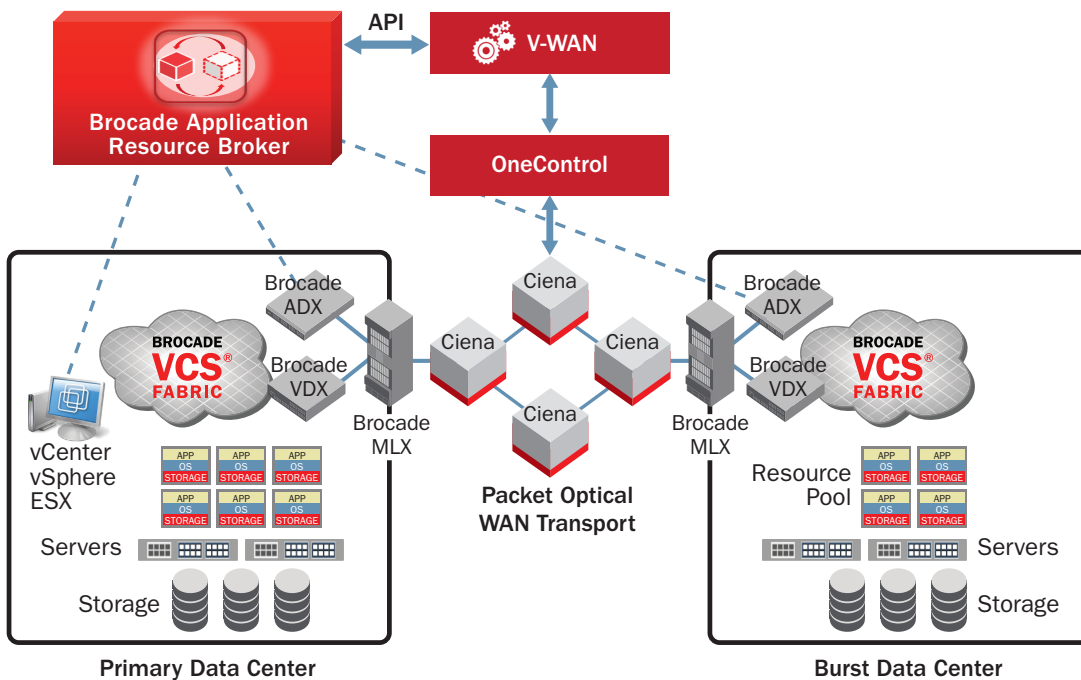


Figure 1. Dynamic resource provisioning with Brocade Application Resource Broker and Ciena V-WAN.

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ABOUT BROCADE

Brocade networking solutions help organizations achieve their critical business initiatives as they transition to a world where applications and information reside anywhere. Today, Brocade is extending its proven data center expertise across the entire network with open, virtual, and efficient solutions built for consolidation, virtualization, and cloud computing. Learn more at www.brocade.com.

ABOUT CIENA

Ciena, the network specialist, offers leading network infrastructure, intelligent software, and comprehensive services to help operators, enterprises, and governments exploit the full potential of their networks and fundamentally change the way they compete. The company's solutions form the foundation of many of the largest, most reliable, and sophisticated networks across the globe.

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