



Centuries Young Bank readies for another century of progress

With over 300 years of history and expertise in banking, Bank is an international financial services provider engaged in personal banking, credit cards, corporate and investment banking and wealth management.

Business benefits

Addresses Board-level strategic initiatives

With this private cloud architecture, the Bank can directly address strategic initiatives defined and assigned by its Board.

Provides ability to compete worldwide

In the fiercely competitive banking services industry, this approach provides the Bank with the ability to compete both worldwide based on scale and in targeted markets based on long-term or short-term opportunities.

Enables response to emerging trends such as alternative currencies

By maximizing overall flexibility in terms of the platforms supported, the ability to respond to emerging trends that may be platform-specific, such as alternative currencies, is maximized.

Needs

To prepare for another century of progress, the Bank's mission is to become the world's "Go-To" bank for a wide variety of financial services. To address its strategic goals, the Bank must:

- Deliver an integrated online financial presence for all customers and trading partners
- Unify around six very large datacenters worldwide, including transparent load balancing and disaster recovery
- Support all applications and environments currently in use, including multiple Cloud Management Systems and hypervisor platforms
- Incorporate bare metal servers and applications
- Scale to a very high number of virtual machines spread across a substantial number of hypervisors
- Provide high elasticity to handle both periodic and unpredictable demand spikes
- Ensure high security and manage compliance efficiently

The Bank's revolutionary and long-term vision could not be realized with their current infrastructure. The visionary solution: Transition entirely to a private cloud with online, real-time access for both customers and trading partners.

The Bank's approach

Taking the long-term view, the Bank built an entirely new architecture with multiple new strategic vendors. Each vendor provides new capabilities or new best-of-breed components.

From an orchestration perspective, the Bank provides a custom user interface. OpenStack provides overall coordination over the private cloud. Nuage Networks Virtualized Services Platform (VSP) overlays and unifies the entire cloud. While KVM is the hypervisor chosen, the ability to implement multiple hypervisors is of high value.

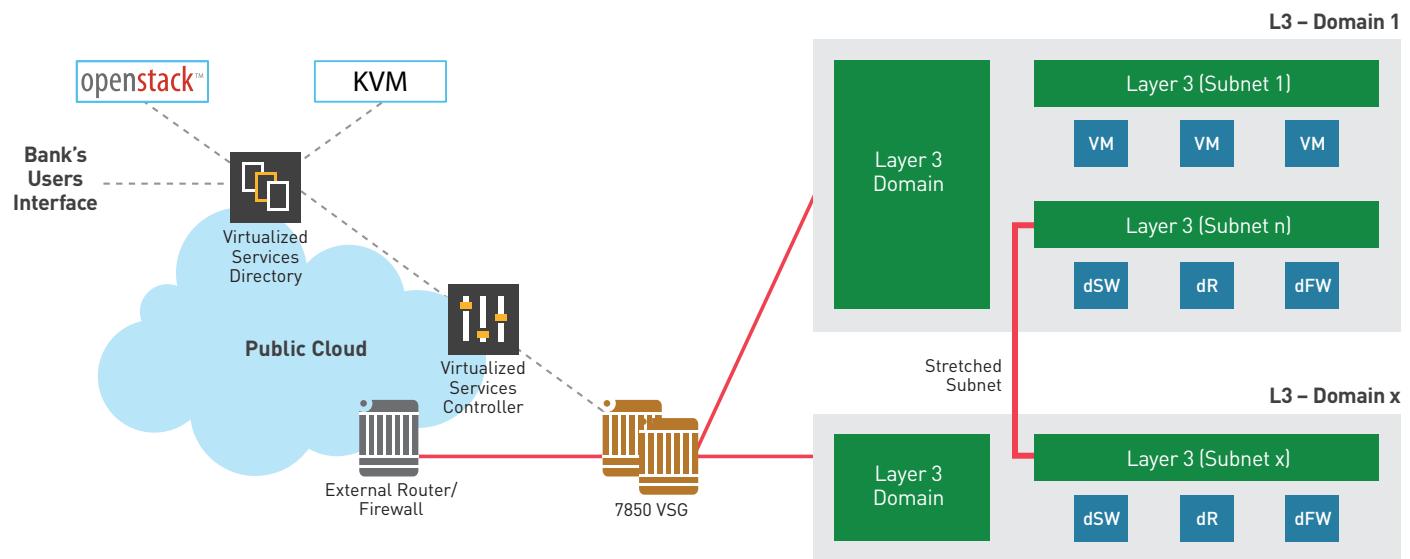
The Bank's private cloud hardware design includes x86-based servers to run both application and networking components. The Nuage Networks 7850 Virtualized Services Gateway (VSG) is the gateway for all traffic between the cloud tenants and the Bank.

In Figure 1, the Bank is transforming tasks formerly accomplished by special purpose hardware into Software Defined Network (SDN) services. Examples include a distributed Switch (dS), a distributed Router (dR), and a distributed Firewall (dFW).

Layer 3 domains are provided based on the needs of the Bank's business unit and application. Remote facilities can be efficiently incorporated via a stretched subnet.

Overall, the private cloud fabric unites six datacenters distributed around the world. All applications and services will be migrated to this environment. Over three years, a 300 percent increase in the number of supported virtual machines is anticipated from migration efforts and organic growth without requiring any re-architecture of the design.

FIGURE 1. Nuage Networks VSP provides a unified fabric across clouds and enterprises



About Nuage Networks

Nuage Networks (www.nuagenetworks.net) brings a unique combination of groundbreaking technologies and unmatched networking expertise to the enterprise and telecommunications industries. The Silicon Valley-based business has applied radically new thinking to the problem of delivering massively scalable and highly programmable SDN solutions within and across the datacenter and out to the wide area network with the security and availability required by business-critical environments. Nuage Networks, backed by the rapidly growing IP/Optical Networks business of Nokia, has the pedigree to serve the needs of the world's biggest clouds. The cloud has made promises — the mission of Nuage Networks is to help you realize them.

Bank's new cloud architecture will help realize its strategic, board-level goals:

- Focus on geographic markets and businesses where it has a scale and competitive advantage
- Target investments in key geographies while maintaining an appropriate presence worldwide to support key services such as investment banking
- Increase profit through key geography-specific opportunities such as focusing on the mass affluent customer segment in Europe

How this approach changes the game

This innovative approach helps the Bank change the game for its customers and its competitors.

Address strategic, board-level goals

Many of the Bank's strategic, board-level goals are based on being able to focus on geographic markets and to respond crisply to geography-specific opportunities. This private cloud architecture enables these goals to be fulfilled.

Rich banking experience in every market

The Bank is leveraging Nuage Networks VSP to provide a unified private cloud fabric worldwide, with consistent network service levels and full workload portability. Leveraging the proven scalability of its networking hardware and Nuage Networks VSP, the Bank can handle daily operations and demand spikes effortlessly. These capabilities ensure the delivery of a rich banking experience in every market served.

Maximum flexibility for banking services

Since Nuage Networks VSP unifies across Cloud Management Systems, virtualization hypervisors and bare metal resources, the Bank has maximum flexibility to develop or adapt existing platforms for its leading banking services.

Maximum responsiveness through automation

By leveraging the automation capabilities of the Cloud Management Systems and Nuage Networks VSP, the Bank is able to

automate responses to customer requests and to internal processes. This automation provides not only better responsiveness to external and internal customers, but also better cost efficiencies.

Bank-grade security and compliance

By uniting the security features within network hardware, by defining software defined security services, and by leveraging the capabilities of Nuage Networks VSP, the Bank is delivering bank-grade security. Compliance requirements are addressed using a variety of measures including Nuage Networks VSP's built-in monitoring and reporting capabilities.

Datacenter security gap addressed

Legacy security approaches focus on external threats rather than threats within the datacenter. The Bank's overall network design isolates and secures the boundary between applications and business units. In addition, the built-in security of Nuage Networks VSP, including a default "Zero Trust" model, operates at the virtual machine level. These capabilities provide security and isolation within the rack, within each business unit, and within the datacenter.

Adding it all up

The Bank's visionary goal of becoming the "Go-To" bank for the world required a new and innovative private cloud approach. Crafting a cloud approach with new strategic providers including Nuage Networks, the Bank is well on its way to another century of progress.