INFOBRIEF

Modern Networks are Essential for Branch Success

Banks are transforming their branch locations with new digital services that will make banking more personal and relevant to customers. This strategy requires bringing the best-possible network connectivity to each branch location. Banks will look to their service providers for modern, IP/MPLS infrastructure that delivers optimum performance at all times and makes it possible to introduce new services efficiently and quickly.

Banks are highly motivated to reinvent the branch concept. The industry is more stable than it was a decade ago, but profitability is less than desired, and banks are striving for growth. While banks offer fewer branches than previously, the locations "remain an essential part of banks' operations and customer advisory functions," according to McKinsey & Company.[1]

Moving forward, banks will make their branches more customer-centric, innovative, and accessible to improve the user experience. A branch could be anything from a 'banking café' with Wi-Fi access to a full-service location that offers traditional banking along with interactive screens, video-based consultants, online access to third-party options, and much more.

Banks will create these new capabilities with an assortment of cloud-based services, transformative technologies like Artificial Intelligence (AI), and collaborations with FinTechs and large tech companies that offer web-based financial services. These advanced technologies require storage and compute upgrades in the data center and placement of resources close to the customer facility. Banks will need modern, IP/MPLS networks to ensure each branch has high-capacity, real-time connectivity to these resources. Modern networks offer many additional strategic benefits, including the opportunity to innovate services with software rather than hardware; openness and programmability; the flexibility to virtualize services; dynamic adaptability to changing network conditions; opportunities to use multi-vendor equipment; and the ability to use convenient and powerful optimization tools.

This paper describes the impacts digital branch services will have on the network and the benefits of a modern, IP/MPLS infrastructure. It offers guidance service providers can use to implement networks that will help banks offer enhanced and highly differentiated services to their branch customers.

The branch of the future

Banks are already innovating to reinvent branch locations. They are tailoring their branches to the location and the types of services customers will expect in a given neighborhood or market.

Small-format branches: Most branches will be small in size, but they will be convenient and highly innovative. A branch could be a small kiosk staffed with one or two representatives during business hours and offering videoconferencing tools to connect customers to remote experts. A branch could be exclusively virtual, providing 24/7 video access to remote bankers or financial advisors. Some branches will be established as banking cafés with Wi-Fi access, where customers can relax or work while conducting bank business. Other branches will be temporary, such as pop-up banks set up at concerts or sports events.

Larger-format or full-service branches: Larger branches will provide a complete range of traditional banking services, augmented by online solutions that encourage customers to spend time on the premises. These locations could offer self-service ATMs, video conferencing access to remote

specialists, interactive walls, and Wi-Fi. Some will function as general business or community centers, offering conference rooms or meeting rooms for customers.

Platforms, collaborations, and transformative technologies

Customers today expect a high level of personalization because they already have user-centric services from FinTechs and companies like Google, Apple, Facebook, and Amazon. They want their banks to understand them and engage with them on a similar basis. They also want the ability to access and control their banking experiences as they prefer. Banks will use online service platforms, business collaborations, and transformative technologies to personalize the branch experience.

Service platforms: Banks need to offer a wide range of services aggregated on digital platforms that keep customers actively engaged with their services and coming back for more. Platforms are easy for customers to use, easy for the bank to scale and modify, and, once created, a bank can "constantly innovate it to make it more sophisticated," according to Backbase.[2] The conveniences and value create 'stickiness' that helps retain ownership of their customers. The services can be accessed online from customer devices and branch devices that customers and bank staff use onsite during in-person interactions and transactions.

Collaborations: Banks are forming collaborations to offer the types of non-traditional services that third-party firms provide. Collaboration helps banks offset the competition and enhance their portfolios to serve a wider range of customers. It also opens up their systems for innovation. The strategy relies on secure APIs, which banks and FinTechs use to integrate their platforms. With services based on APIs, for example, customers can have personalized dashboards connecting to a variety of banking and financial services so they do not have to log directly in to FinTech sites. APIs also open the door to greater information access, allowing customers, for example, to view their credit scores in real time through their bank or affiliated online accounts.

Transformative technologies: Banks are improving their core infrastructures so they can develop centralized capabilities that make customer services more intelligent and personal. They are upgrading their data centers with more storage and compute capability to support new technologies that are processing-intensive, such as AI, machine learning (ML), blockchain, and others.

Banks will use AI and ML to understand how customers use their accounts, predict the services customers need, and provide guidance to them in real time. They will tailor promotions to individual users in a branch based on each customer's own spending habits, investments, risk tolerance, and goals. AI-powered Internet of Things (IoT) applications will interpret customer movements and behavior within a branch location so bank employees can better engage with customers.

Banks will also use AI and ML to provide the smarts behind robo-advisors, chatbots, and precision marketing solutions; implement Robotic Process Automation (RPA) applications that automate manual tasks; and run new security solutions that detect data abnormalities, identify fraud, and prevent breaches in real time.

AI and ML platforms do place demands on the network. For example, they must run algorithms in real time to update transaction data from cloud-based banking and FinTech solutions so customers and staff can access services instantly—whether the customer is at the counter speaking with a human teller, interacting with a chatbot, talking to a specialist in another city via video conference, or using an ATM or interactive display.

These types of online interactions could occur in a private data center, in a cloud, or on a platform shared with a partner. Branches will access the data either directly through a cloud-connect type service, or through a company primary data center that links into the service.

Upgrading to IP/MPLS to modernize and evolutionize branch networks

To support banking's digital branch strategies, providers will need to interconnect branches to the banks' core businesses, data centers, and cloud resources with high-performing networks that support the transformative and real-time technologies used by each location.

Depending on the size and networking demands of the branch, a location will need 1GbE to 10GbE connections. A 1GbE connection should be sufficient to support networking services at a kiosk or very small branch; connections up to 10GbE will be needed for larger branches to support greater demand for high-bandwidth services and backhaul Wi-Fi traffic to the core network. As banks push even more traffic into the network, their use of 25GbE devices, which have been available since 2016, will grow dramatically as a complementary step to 100GbE.

The network should be open and programmable and provide high-capacity, high-speed, low-latency connections. It should have the capability to allocate bandwidth dynamically, as needed in real time, to support different traffic types and peak demand without leaving excess bandwidth available during low-use periods. It should allow opportunities to evolutionize the infrastructure with Software-Defined Networking (SDN), Virtualized Network Functions (VNFs), and virtualized managed services that simplify deployment and reduce costs. The architecture should also make it easier to manage and control the network and services.

Legacy networks that use older technologies to connect to data centers and cloud services are not up to this challenge. Ethernet, IP, and legacy MPLS protocols, for example, can be difficult to implement and integrate across networks. They also employ complicated routing techniques and fixed bandwidth allocations that prevent dynamic scaling and carry a high burden of operational cost and complexity. These approaches are unable to support the low-latency capabilities that AI and ML solutions need to deliver insights about customers or prevent security breaches in real time.

A modern, IP/MPLS infrastructure, using a Layer 3 IP-based solution, can solve these challenges to support the most demanding applications for a branch and ensure a high Quality of Experience (QoE) for customers and staff. A modern network not only transports legacy services, it can support segment routing—a new IP transport architecture that simplifies the network, makes it more adaptive, dynamic, and scalable, and optimizes traffic to expedite data delivery and minimize latency.

Once the modern routing and switching network is in place, banks can use software-based VNFs to enable different banking applications. Most of the components branches need for networking, such as SD-WAN, routers, servers, encryption, and firewalls, can be virtualized and offered to banks as managed services that are easy to create, provision, maintain, or change. The capability will be particularly helpful for small and medium branches that need the network functions but do not have the IT support to manage equipment. Virtualization can use ML techniques to detect threats and reconfigure information flows to protect the network. It also reduces the need for hardware, minimizes equipment space requirements, and lowers power and cooling expenses.

Evolutionize your Routing and Switching networks

Ciena's routing and switching solutions for bank branches

Ciena's modern routing and switching solutions use a new architecture, called Adaptive IP™, to provide the very demanding service quality and responsiveness banks need for their branch locations. Adaptive IP leverages programmable infrastructure, disaggregation of hardware and software, open APIs, virtualization, and advanced Layer 3 IP-based solutions like segment routing to simplify IP services across a network and make it more dynamic, operationally efficient, and cost-effective. Solutions for bank branches include the following:

For kiosks and small to medium branches: Ciena recommends the 3906 platform to provide connectivity from kiosks and small to medium branches to the data center or cloud. The 6 Gb/s Ethernet/OTN fabric 3906, a compact CPE device, is a high-performance, carrier-grade platform supporting up to six 1GbE Ethernet connections and VNF hosting via one of the optional x86 server modules. It integrates with Ciena's Blue Planet® SDN solutions to host virtual SD-WAN, firewall, voice gateway, and other components, including IoT platforms and associated data analytics. It is an open platform, offering banks the capability to use Ciena's Distributed-NFV (D-NFVI) software to conveniently implement VNFs they prefer and use best-of-breed solutions from different vendors. D-NFVI also makes it easier to monitor, automate, and debug virtual functions. Ciena's Blue Planet Multi-Domain Service Orchestration (MDSO) or a third-party solution can provide orchestration. The 3906 can be remotely provisioned, upgraded, maintained, and managed without truck rolls to reduce costs and minimize deployment errors.

For large branches or headquarters: Ciena's 3926 platform provides all the features and benefits of the 3906, but at greater scale. It is recommended for large branch offices or bank headquarters that need greater capacity and speed to support the high-bandwidth applications, low-latency requirements, and high traffic volumes expected in these venues. The 3926 supports up to 10 GbE services, with six 10GbE ports and multiple VNF hosting via one of the optional x86 server modules. Like the 3906, the 3926 supports Ciena's D-NFVI software and Blue Planet MDSO to provide an open platform that allows virtualization and streamlines orchestration, deployment, provisioning, and maintenance.

For very large banks that operate their own networks: Banks that have their own fiber networks or use dark fiber will need to scale up network bandwidth to accommodate the increases in aggregated traffic and transport it from branches to the core.

Ciena offers two carrier-class switch and platform solutions that are ideal for these applications. The 5170, designed for use in an environmentally-controlled facility, delivers up to 100GbE services to branches. The 5170 platform supports both routing and switching. Ciena's 5171 is deployed in street cabinets at the edge of the network to bring 100GbE services close to customer facilities. The 5171 also supports routing and switching.

Banks implementing the 5170 or 5171 can also use Ciena's Blue Planet Route Optimization and Assurance (ROA) solution, a forensic tool, to optimize Layer 3 IP-based services based on network analytics. ROA provides real-time visibility into the network, revealing how traffic and routing behaviors affect service delivery. ROA helps make the best use of CAPEX budgets because it reveals where to invest in new equipment or optimize existing solutions.

Adaptive IP
Gain more insights

How to begin the evolution

Banks can plan now to evolve to a modern IP/MPLS network that will deliver a compelling customer experience to their banking customers' branch locations while also reducing costs.

Here are some recommendations for getting started:

- Adopt a services-first mindset and strategy to ensure the equipment the bank recommends and deploys will support all the services and applications it wants to enable at branch locations.
- Perform a self-assessment of the infrastructure serving the bank branches to understand it completely. First, analyze the network to identify all components and pinpoint performance bottlenecks or other issues. Next, evaluate branch applications and traffic the bank will need to support with the new network. Identify branch services that are latency-sensitive (and those that are not) to support these accordingly.
- Define a network to support the branch applications and plan a network evolution to build that capability. Next, specify the equipment needed for each branch and the associated space and electrical power requirements. Modern, IP/MPLS solutions consume significantly less space and power than legacy options, which improves cost-effectiveness.
- Determine which hardware technologies the bank can avoid with software-based solutions and plan to modernize those. Software is more flexible and easier to deploy, and it allows virtualization of network functions, which expedites installation, updates, and maintenance.
- Review the bank's investments in legacy equipment and its optimization potential. Can it support differentiated services dynamically? Can it support virtualization? Can it cost-effectively push bandwidth closer to customers? Can it use newer routing protocols? If the equipment does not have these capabilities, it is time to evolve to a modern, IP/MPLS infrastructure.
- Use network staffing resources effectively to optimize operational costs. Are the bank's engineers skilled in newer IP/MPLS technologies? Are there teams that are over- or under-utilized? Does staff need retraining, or does the bank need to recruit new teams? The need for skills and the allocation of skills should be considered along with the deployment.
- Consider the expected lifecycle and capabilities of the legacy equipment when deciding whether to modernize it now or maintain it until it is no longer useful or manageable. There is no need to 'rip and replace' existing infrastructure. Banks can deploy modern IP/MPLS technology gradually, in accordance with their service strategies.

Talk to Ciena Services: Ciena's team of professional service engineers and consultants can help banks evolve away from legacy networks and implement new infrastructure for branches. Ciena Services will help establish the success criteria for a deployment; perform the research and audits needed to establish a baseline of the network; plan the migration step-by-step; deploy new equipment and ensure it is operating as it should; and decommission and remove legacy equipment. Ciena can also provide staff and training to help IT teams learn how to operate and manage the new infrastructure and services.

Throughout the process, Ciena Services uses Blue Planet software, automated provisioning, and ROA solutions to see how branches are using the network, optimize planning, and expedite deployment with fewer mistakes. Ciena's teams employ best practices for project management and diligently apply lessons learned from all of their engagements to ensure consistent, positive outcomes.

Connect with Ciena Services

In brief: Modern routing and switching networks are essential for branch success

Today's society thrives on customer-centric digital services, and banks must upgrade their branch locations and services to attract customers and build customer loyalty. Banks are innovating with new branch designs and using new service platforms, business collaborations, and transformative technologies to create highly personalized services, but they will not be able to make full use of these capabilities without high-performing connections between network resources and each branch. Ciena's modern, IP/MPLS networking solutions and Adaptive IP architecture provide the quality and responsiveness banks need to support all types of locations, from self-service kiosks to the largest branch facilities. For providers who want professional services support, Ciena Services can help guide the process and ensure a successful network transition.

Was this content useful? Yes No

1 "A Bank Branch for the Digital Age," by Klaus Dallerup, Sheinal Jayantilal et al., July 2018, McKinsey & Co.
2 "Banking 2025: Four Pillars of the Digital-First Bank," Backbase, June 2018, pages 3-4.