Residential vCPE
Turning the home network into a revenue source

Business Challenge

Today’s consumers are more tech-savvy than ever before and are filling their homes with cutting-edge devices. As such, equipment vendors are often happy to give end users access to tools that enable super-connected and smart entertainment spaces. At the same time, the growing number and complexity of devices associated with this trend means that operators must personalize customer experience all the way down the device.

Similarly, the rising presence of smart mobile devices is dramatically increasing the amount of traffic that is consumed, which is largely driven by the availability of online video services. In order to support fluctuating customer traffic and service quality demands, operators must be able to deploy extra capacity across their networks and dynamically control bandwidth to maximize service efficiency.

As the mobile landscape expands and competition increases, service providers must expand their portfolios beyond traditional connectivity and triple-play bundles. In order to remain relevant, operators need to be capable of delivering new, on-demand, personalized and user-controlled services, content and applications quickly at a low cost.

These trends suggest that operators can no longer rely on legacy, hardware-based networks with heterogeneous customer premises equipment (CPE), as doing so can impair their ability to address new market opportunities or meet specific cost and quality metrics. Today, service providers that are dependent on hardware-centric technologies often experience support and maintenance problems, long troubleshooting cycles, frequent truck rolls and rising operational expenses.

With NEC/Netcracker’s Residential virtualized CPE (vCPE) offering, service providers can migrate complicated functionality that exists in residential equipment to software-defined environments. The vCPE includes a virtual broadband network gateway (BNG), virtual network address translation (NAT) and virtual dynamic host configuration protocol (DHCP) functions, which run as software in the operator’s point of presence (PoP) or data center to simplify service configuration.

The NEC/Netcracker Residential vCPE offering also leverages an intuitive customer self-service portal, advanced orchestration capabilities and diagnostic tools.

“We are extremely pleased with the positive results of this PoC. In addition to current services, this solution enables new services to be launched and configured for customers much faster and more efficiently, leading to significant cost reductions. Moreover, the need for technicians to visit customers’ homes is clearly reduced, also resulting in lower costs.”

– Portugal Telecom
Details

Benefits

Generate Revenue
- Design and introduce value-added services faster
- Collaborate with third parties to expand service portfolios
- Adopt new service models, such as cloud and SaaS
- Provide granular per-service, per-user and per-device usage monitoring to launch personalized offerings

Reduce Opex
- Reduce new subscriber onboarding costs
- Minimize on-premises troubleshooting and the number of truck rolls
- Improve problem resolution success rates with Level 1 customer support
- Minimize CSR involvement by allowing customers to order and manage services via self-service portals

Improve Customer Experience
- Provide intuitive customer portals
- Employ a try-and-buy experience for value-added services
- Enable per-device policy-based QoS, access and usage control
- Proactively troubleshoot customer issues
- Easily restore unique customer configurations through centralized cloud storage
- Maximize service personalization by using embedded analytics capabilities

Our Residential vCPE offering allows operators to support a large variety of use cases, including the following:

Home LAN Extension
By extending a multimedia server into their networks, operators can provide customers with remote access to home content and deliver their own or third-party media to customers. This allows deploying media services without installing a set-top box at the customer’s location, enabling carriers to enrich their portfolios through cloud service models.

Example: A customer logs in to the self-service portal and orders a video service, the service orchestration component instantiates, configures and connects a DLNA server with the home LAN. The DLNA server is then displayed to the end user as another home device, allowing customers to upload media content and play it on any DLNA-certified device.

Per-Device Policy Management
Managing policies per device allows operators to oversee service quality, access and usage for each platform and apply highly personalized policies. These actions can include traffic prioritization, rate limit, HTTP/HTTPS traffic filtering, application access filtering, and others. As a result, providers can personalize services for every device.

Example: In the self-service portal, customers specify traffic policies for each home device. The policies may include prioritizing high traffic to a specific gaming device, setting parameters for Internet access times on a child’s device or placing monthly bandwidth quotas for various devices. Web traffic generated by specific connected devices is detected by the vBNG, which then applies policies based on established plans.

Per-Device Service Chaining
Per-device service chaining enables the fast introduction of an operator’s internally developed and personalized third-party value-added services (VAS) beyond commoditized triple-play offerings. This helps operators quickly introduce more attractive services and address new revenue opportunities.

Example: Using a self-service portal, customers specify MAC addresses of the devices that should be subject to parental control. When Web traffic generated by the child’s device is detected by the vBNG, it is redirected to the parental control server in the operator’s data center where certain policies are applied. If that device is shared by all family members, traffic can be redirected to a Web-based authentication page. Once the user is authenticated, the system applies the respective parental control policies.