Managed Business Network Solution

Increase Revenue and Expand Market Leadership

Benu Networks’ software platform is virtualized and distributed to increase deployment flexibility and maximize operation efficiencies and scale. This approach enables service providers to rapidly create bespoke service offerings that are integrated into their existing access, core network and OSS/BSS assets. Essentially, Benu Networks’ solution is a service delivery platform (VSE) combined with a rich application suite (MBN) that transforms the Telco or MSO into an agile cloud managed services provider for the SMB market.

MANAGED BUSINESS NETWORK SOLUTION

For many service providers, business services offerings consist of two distinct product families. The first product family consists of offerings that are derived from enterprise technologies like routers, firewalls, access points, load balancers, etc. These technologies are typically very similar or identical to products that enterprises might purchase directly from established vendors, but instead choose to do so through a service provider for value-added services or economic reasons.

The second product family typically offered by service providers consists of business services that are derived from residential technologies. The offering centers on a 2/3/4 play offering leveraging the residential broadband network. The equipment deployed on site is either residential grade, or some derivative of residential grade technology that has been enhanced for small and medium businesses. Although the average revenue per user for this second family of products is typically lower, there are generally a much larger number of addressable users.

The Managed Business Network Solution enables a service provider to greatly enhance this second residential-derived offering. Enhancing the service offering has the potential to greatly increase customer affinity to the service, drive ARPU through value added services, and differentiate the offering relative to competitors.

The Managed Business Network solution is a multi-vendor solution which leverages several key technologies in order to create a novel, compelling solution for service providers to offer their customers. Individually, these technologies exist in the marketplace today. However, their combination, not yet present in the marketplace, creates something greater than the parts for both end users and service providers.

THE SHIFT TO CLOUD MANAGED IT SERVICES

The cloud managed services market is flourishing in recent years due to the advancements in cloud computing, solution ecosystem, scale and economics. Managed IT services allow businesses to outsource most aspects of their IT infrastructure to a 3rd party which can reduce the recurring in-house IT costs by 30-40% and bring about 50-60% increase in efficiency. Analyst firm Gartner predicts that $1 Trillion in IT spending will be impacted by the shift to cloud during the next five years. Spending on IT has been consistently shifting from conventional offerings to cloud services. This represents a major opportunity for traditional Fixed Telco, Mobile Network Operators (MNO) and Multi-Service Operators (MSO’s) to deliver compelling cloud managed IT services.
The enterprise business segment varies based on company size, industry and structure. The SMB Group, a research firm based in Boston, MA, defines the broader SMB market to include commercial companies with 1 to 99 employees, and upper midmarket with 1,000 to 2,500 employees.

The SMB Group further defines the composition of SMB into many smaller, more discrete market segments of SoHo, small business and medium business. As can be seen in Figure 1, 68% of firms worldwide are SoHo businesses and an overwhelming (99%) are SMB.

Offering managed services to these diverse enterprise segments, will require different solution offerings and price points. While many of the managed service offerings today have been focused on mid-market to large enterprise there is a major opportunity for Fixed, Mobile and Converged Operators to deliver IT managed cloud network services for Wi-Fi, LAN, WAN, security, storage etc. to the SoHo/SME market. The SMB market has become a more dynamic market to serve for service providers. Historically the Telco and MSO’s have served the SMB market with enhanced residential service bundles (Data, Voice, and Video). Typically, the solution for this segment was a simple bundle consisting of 1-4 different service offerings with broadband connectivity as the anchor. This is largely do the fact that capital expenditures for both the business and service provider are highly price sensitive, often matching those of a typical residential service.

MANAGED SERVICES DRIVERS WITHIN THE SMB MARKET

Cloud managed services have had a direct and profound impact on the delivery of services to the SMB market segment. These businesses are the first to adopt cloud software-as-a-service (SaaS), given its simplicity and low price relative to other solutions. The feature requirements of this segment are relatively simple, and the primary value proposition is the complete outsourcing of their IT to the service provider.
The core value of managed IT services to the SMB segment is a Zero IT experience which allows business owners to focus completely on their line of business, eliminating the hassle of managing technology. Restaurants, Café’s, Salons, Barbershop, Automotive and many other SMB industry segments offer free Wi-Fi as an amenity but are not leveraging this service to its maximum potential. This segment is also concerned with expanding the business through social media technology and understanding customer business intelligence. SMB’s are also in need of key services as the dependency on digital technology and the Internet increases. The combination of price sensitivity, lack of IT expertise and need to integrate digital technology into their business creates a major opportunity for Telco’s and MSO’s to offer a suite of managed IT services to this mass market segment. In Figure 2 below is a summary of key services for the SMB market.

**BENU NETWORKS’ MANAGED BUSINESS NETWORK SOLUTION**

Benu Networks has taken a unique solution approach to enable the rapid creation, deployment and modification of SMB managed networking services. The solution is marketed under the name Managed Business Networking (MBN). Benu Networks’ MBN solution enables Enterprise class cloud service delivery and value added managed networking services to the SMB/SME mass market on an open platform that is integrated into the service provider network infrastructure. The solution greatly amplifies the offering for business services and unlike other similar offerings is designed to be owned, controlled and implemented by the service provider. Benu Networks’ platform, the Virtual Service Edge (VSE), leverages the latest technology in SDN and virtualization to transform the service provider’s infrastructure assets to maximize profitability while addressing SMB price sensitivity. The MBN solution supports a set of SMB managed networking features, and customization tool set. The VSE platform is virtualized and distributed to increase deployment flexibility and maximize operation efficiencies and scale. This approach enables service providers to create bespoke service offerings that are integrated into their existing access, core network and OSS/BSS assets. Essentially, Benu Networks’ solution is a service delivery platform (VSE) combined with a rich application suite (MBN) that transforms the Telco or MSO into an agile cloud managed services provider for SMB market.

Benu Networks’ MBN solution utilizes Benu Networks’ VSE (Virtual Service Edge) platform that comprises a set of software functions deployed in the service provider’s core network. The solution relies on a customer’s Wi-Fi broadband gateway to be provisioned in a Smartbridge mode.
Benu Networks’ VSE architecture has a number of sub-components that work together to enable the MBN service.

- **Benu Networks’ Subscriber Session Controller:** The Subscriber Session Controller (SSC) is the Policy Engine and the Service Analytic broker of the VSE architecture. For customer on boarding, IT manages and stores all the end user profiles and carrier service templates in a highly scalable and persistent Database infrastructure. For each MBN or user account, the SSC allows the creation of sets of rules with device granularity that can enable rich use cases from personal to IoT traffic classification and policing. Web services are then available for an agile integration with OSS and Provisioning platforms including ACS systems for Wi-Fi management. The Benu Networks’ SSC exposes natively Network and Service Analytics for big data platforms integration and business assurance.

- **Benu Networks’ MBN Portal:** The MBN Portal is the Web server Front End for both the end user and the service provider Administrator. The End user dashboard is designed to offer an intuitive path thru the functions available with two-layers design being the common routine actions followed by advanced sections where a complete set of capabilities are exposed to a user. From this type of zero-IT panel the business owner can easily enable a Guest SSID, create bespoke vanity portals for their customers, launch business promotions and integrate with social networks to enable forms of communications inaccessible to the SME market yet. The MBN Portal also offers a single pane of Glass for the service provider NOC and service administrator. From the Admin view, the support team can assist customers, maintain the platform and troubleshoot the service.

- **Benu Networks vMEG:** The virtual Mobile Edge Gateway (vMEG) is the aggregation point for the user traffic. It is a programmable data plane controlled by the Benu Networks’ Subscriber Session Controller (SSC) Policy Engine via Restful APIs that sits in the service provider Cloud or Service Network. The vMEG terminates the EoGRE tunnels (L2 overlay technology) from the CPEs and enforces policies based on Service template, e.g. gold, silver, bronze service level, and MBN Account specifics, e.g. personal versus IoT device. The vMEG also performs other in-line IP services like DHCP, Carrier Grade NAT, Packet accounting, access control, Service Edge Routing and more. Network Analytics are then exported via Apache Kafka architecture for large volumes of data.

- **SmartBridge:** This service moves the NAT/Router functions of the customer premise Router of the service provider core network. These functions now run in a virtual router (vRouter) instance also referred to as virtual CPE. The vRouter supports the virtualization of the CPE Router functions such as NAT, NAT-PMP, UPnP, DHCP and DNS etc. The SmartBridge utilizes Ethernet over GRE tunnel from the CPE to the vRouter instance on the VSE platform.
Benu Networks’ open MBN architecture seamlessly integrates into a service provider’s BSS, customer care processes, and other back end systems, to allow them to experience the owner’s economics and integrate the offering with other products (residential, homespot, Wi-Fi). Enhancing the service offering has the potential to greatly increase customer affinity to the service, drive ARPU through value added services, and differentiate the offering relative to competitors. This is of great value since it enables a service provider to enhance its brand and differentiate itself from the competition (i.e.: other service providers) as well as over-the-top (OTT) providers. This promotes stickiness to a service provider’s business broadband offerings as they now can offer new features that are easily customized to the customer’s specific needs.

The MBN solution provides CAPEX and OPEX efficiency to the service provider. Since the platform is deployed in the service provider’s core network, it seamlessly integrates with the existing access network technology. This allows the service provider to deploy the MBN service using the existing Wi-Fi capable broadband CPE e.g. Wi-Fi DOCSIS gateways or Wi-Fi DSL gateways. This implementation model can save the service provider hundreds of dollars/euros in Wi-Fi access point CAPEX savings for acquired customers, and also provides additional savings in OPEX by not requiring a truck roll for new customer deployments. The service can be activated remotely on the customer’s existing Wi-Fi capable broadband gateway. Benu Networks’ MBN platform accelerates a service provider’s ROI to a matter of months as opposed to years.

Benu Networks’ MBN solution is software based and can be orchestrated in a virtualized infrastructure (IaaS) or as an integrated COTS appliance. In both deployment scenarios, a software based platform approach allows the service provider to operate at Web scale (i.e.: rapidly deliver new features) at a low upfront investment. Utilizing an overlay and abstracted architecture that supports a success-based spending model, the components of the MBN solution can be centralized and used to deploy services across a large logical and physical footprint. The solution leverages several key technologies in order to create novel, compelling services for service providers to offer their customers.

**KEY FEATURES**

**Cloud-delivered IP Services:** The core Benu Networks’ value proposition is the delivery of IP services from the service provider’s network, instead of from the edge. This model has proven to be very effective at providing high-scale IP services across a large footprint. Additionally, the visibility and policy control made possible by this model allows service providers to offer unique, per-user services not otherwise available. Finally, the instrumentation and analytics generated by the cloud-delivery model are both real-time and more robust than the edge-deployment model.

**Cloud-managed Services:** Moving the business logic from the CPE to a cloud application is a powerful enabler of user experience.

**Intuitive Customer Portal:** A user friendly dashboard for the customer to manage their account including guest Wi-Fi network, promotions, bandwidth and cloud services. An intuitive presentation of customer services that allows them to focus on their business instead of IT know-how.

**Streamlined CPE:** The solution provides the ability for service providers to centralize CPE functions including DHCP Server, RADIUS authentication, RADIUS accounting, Carrier Grade NAT, Service Edge Routing, port forwarding, ACLs, Hierarchical QoS enforcement per device/VLAN/premise, Layer 3 VPNs. The shift of IP service delivery and management into the service provider’s network allows the premise deployed equipment to be streamlined and purpose-built for best-in-class access technologies. Because the CPE no longer is laden with complex business logic, service providers could potentially afford to shorten upgrade cycles, deploy more equipment in the same location, and enhance the value of the same CPE by adding capability in the network.

The combination of these attributes is an offering that does not exist in the market today - one that is natively owned by the service provider, completely open for integration with existing back-ends and services, and that leverages best-in-class CPE without imposing extensive interoperability requirements. This solution is intended to provide a novel service in a specific market segment, namely the Small-Medium Business (SMB) and Small Office Home Office (SoH/o) market.
DESIGNED FOR SIMPLE INTEGRATION

The VSE solution is designed to overcome the challenges within the service activation and fulfillment. Each component of the Benu Networks’ vCPE architecture utilizes industry standard and open interfaces for optimized workflows including:

- SAML and OpenID support for Single Sign-On user experience for both end user and carrier personnel,
- Restful APIs for service provisioning that support massive rollout for items, such as service profile upgrade, etc.,
- Restful APIs for vertical integration (e.g. ACS integration), and
- SmartBridge specification support to ease the onboarding of existing CPE infrastructure.

USE CASES FOR BUSINESS OWNERS

Benu Networks’ MBN platform enables service providers to offer their SMB broadband customers a new value added managed service as an add-on tier to their existing broadband subscription. The service is immensely useful for a category of business owners that have minimal to no IT experience and do not have IT staff to help them with essential networking services required in today’s digital economy. A summarized highlight of such a set of requirements are listed below:

**Intuitive Graphical User Interface for Service Management (Business Subscriber Portal):** Multi-tenant Web front-end for business owners capable of displaying enhanced analytics at the network, SSID and device levels as well as a policy and configuration portal for guest, private and Community Wi-Fi networks. (See Figure 4.)

**Captive Portal (Guest Wi-Fi Portal):** Multi-tenant landing page utilized for guest SSID authentication. It can be easily customized and configured by the business owner. In addition, the guest can also sign-in. Benu Networks’ front end also integrates Facebook Wi-Fi check-in, whereby customers simply check in to the SMB location on Facebook to connect to free Wi-Fi. Customers can manually check in or choose a setting that lets them automatically check in whenever they visit your location. (See Figure 5.)

**Guest Wi-Fi Promotions:** Create marketing campaigns to promote products or services for guests using Wi-Fi. These promotions can be easily created, customized and changed on the fly. The customer will see the promotion when accessing the guest Wi-Fi network. (See Figure 6.)

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**Figure 4: Business Subscriber Portal**

**Figure 5: Captive Portal**

**Figure 6: Promotion Screen**
**Social Network Integration:** Benu Networks’ vCPE supports natively Facebook Check-In integration to let the business owner leverage his local community and social exposure. (See Figure 7.)

**Customer Analytics:** Provides insight into visitors using business Wi-Fi including demographics and social profile, number of visits by time of day, number of repeat devices, time spent online etc. These statistics can be used to generate targeted promotions to frequent visitors. (See Figure 8.)

**Network & Device Controls:** A business owner can set restrictions including bandwidth and usage time for better network performance. Firewall policies can be done either for the entire network or per device. (See Figure 9.)

**Multi-Site Branch VPN:** Benu enables simple connectivity at Layer 2 or Layer 3 between locations, allowing SMBs with multiple locations to connect remote devices between each other or connect devices in branches to business servers in HQ locations.

**Added Integrated Cloud Services (i.e.: Cloud Based Security/Firewall):** The ability to onboard 3rd party application services such as next generation firewall, cloud storage via intelligent service steering to provide an integrated user experience. These services can dynamically be updated and integrated with the self-provisioning portal for the business owner.

### FEATURE BUNDLES

A feature comparison of Benu Networks’ MBN feature bundles are shown in the chart on the right. There are four bundles available as part of the solution:

1. Private
2. Guest
3. Standard
4. Advanced

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(See Figure 10: MBN Feature Bundles)
SOLUTION BRIEF - MANAGED BUSINESS NETWORK

THE BUSINESS CASE AND ROI FOR SERVICE PROVIDERS

The following is an example of the revenue a service provider can generate from a Managed Business solution:

- Current SoHo/SME customer base of 200,000 subscribers.
- New MBN based product offering where service provider charges $20 per month.
- 25% of customers select this MBN offering.
- Potential increase in number of MBN customers after 3 years:
  - Year 1: 10,000 subscribers
  - Year 2: 30,000 subscribers
  - Year 3: 50,000 subscribers

Results:
- Estimated 3 Year ARPU
- Revenue Generated = $21.6 Million

SUMMARY

Benu Networks’ MBN solution affords service providers an opportunity to tap into a currently underserved market with services that can be turned up expeditiously and efficiently. With the MBN solution the service provider owns the customer information, the solution and the analytics to help generate additional revenue and reduce subscriber churn. In addition, the VSE offers the service provider the ability to offer additional applications such as a Managed Home Network and Carrier Wi-Fi.

ABOUT BENU NETWORKS

Benu Networks’ carrier-class Virtual Service Edge (VSE) software platform enables the rapid creation and delivery of next generation IP services over a converged infrastructure, and empowers service providers to increase revenue, expand market leadership, and meet the dynamic needs of their business, residential and mobile customers.