# pronto
## networks

*Enabling the next wave of Connectivity™*

**BT OpenZone In a Box:
Pronto's Solution for Operator
Managed Hotspots**

## Introduction

BT is one of the world's leading providers of communications solutions serving customers in Europe, the Americas and Asia Pacific. Its principal activities include networked IT services, local, national and international telecommunications services, and higher-value broadband and Internet products and services.

In the UK, BT serves more than 20 million business and residential customers with more than 30 million exchange lines, as well as providing network services to other licensed operators.BT Openzone in a Box is an easy-to-use
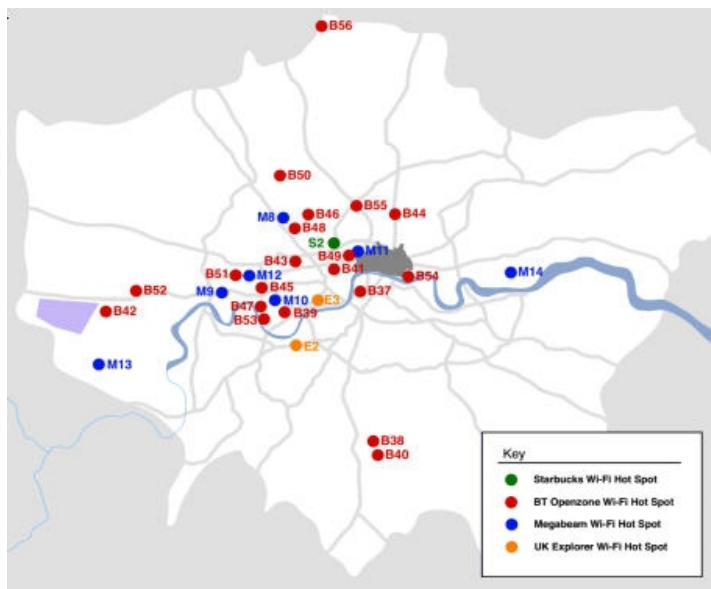


broadband Internet access service that any proprietor can setup using BT OZIAB hardware purchased from local distribution channels and service configuration, provisioning, and operations support from British Telecom.  Establishments can sign up for the BT OZIAB program on the BT website. Once the Wi-Fi service is enabled as part of the OZIAB provisioning process, laptop users, through wireless technology (Wi-Fi), can access the Internet - with no download limits - at any of the thousands of hotspots in a number of places such as cafés, hotels, motorway service stations and airports in the UK and abroad. One can get online at BT Openzone hotspots throughout the UK and Ireland, and at selected locations abroad.

## Business Situation

BT wanted to set up wireless Internet access hotspots across various locations in UK. BT had deployed a wireless infrastructure solution using Net gear's routers and Cisco SSG solution, which they called as "BT Openzone in a Box". However, BT faced certain critical network

related issues with the deployed wireless infrastructure system with regards to the following aspects:

- Location provisioning problems
- Back office provisioning problems / issues
- Hotspot Device / User monitoring problems / issues

BT required a system focused on Wi-Fi technologies to resolve these issues.

### Location Provisioning Issues:

The existing network of BT had several limitations for the location owner to set up Wi-Fi at his/her location and then to start provisioning the Wi-Fi service. Some of these issues were:

1. Tedious and complex configuration process
2. Expertise level of location owner  The location owner does not always have the technical background to deal with the problems encountered in the complex configuration and set-up procedure
3. Error prone process related to backup files on laptops, etc.
4. The Wi-Fi hotspot network configuration expects the user to be aware of his device's OS and wireless connectivity method, thus requiring him to change these settings for different hotspots.
5. Corporate users are required to change the proxy settings on their device to connect to the hotspot

### Back office provisioning problems:

The back office provisioning process required forms to be sent to BT centrally so that they could configure their OSS with appropriate MAC addresses, IP subnet ranges, etc. This lead to process delays in coordinating location owner availability with NOC personnel support availability.  Also, each configuration detail had to be passed on to the BT centrally, which is an error prone process, leading to multiple iterations of the same tasks.

### Network Monitoring problems:

BT network had several inherent Network Monitoring problems as listed below:

1. Requirement of IPSec tunnel from Hotspot to SSG
2. Not being able to monitor subscribers behind the AP
3. Monitoring of the AP in general
4. Downtimes that could not be proactively or quickly reacted to, causing loss of service at the location
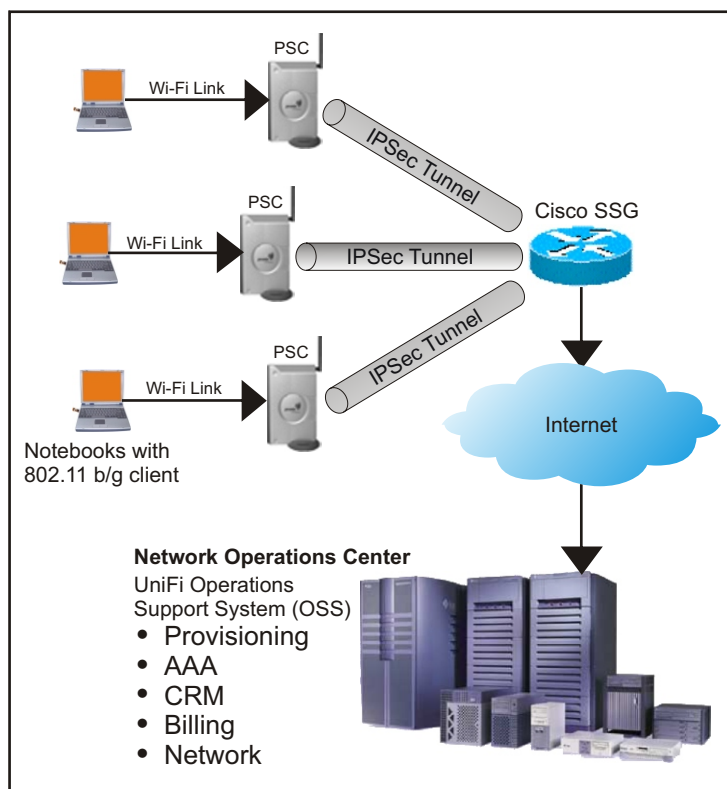5. Reduced customer satisfaction

## Managing Wi-Fi Hotspots in Centralized Network Architecture

Earlier, in order for the managed hotspots to operate correctly, the location owner's ADSL Modem Router or Cable Router was required to have a feature called VPN pass-through for IPSec tunnels from the Hotspot device to the central Cisco Service Selection Gateway (SSG). In case it was not supported, it was required to put the hotspots into an open access type network, a DMZ (de-militarized zone) portion of the LAN. These non-simplistic configuration and provisioning issues created challenges for installation and setup of the service. In addition, due to various reasons, the connectivity between the location and the SSG is unreliable and results in unscheduled outages.

The Pronto Service Controller can be used to replace the standard APs deployed by these managed hotspot operators in various locations. The PSC acts as a managed AP in these locations. The network architecture for a typical solution is as described nearby.

The client Wi-Fi Laptop connects to the PSC, which carries these connection details to the Cisco SSG on a secure IPSec tunnel. The Cisco SSG passes these credentials to the Pronto UniFi OSS via the Internet for the user authentication. Once the user is authenticated, he/she can start browsing the Internet immediately.



Notebooks with 802.11 b/g client

**Network Operations Center**
UniFi Operations
Support System (OSS)
- Provisioning
- AAA
- CRM
- Billing
- Network

### Benefits for BT Openzone

The solution proposed by Pronto Networks to BT provides following benefits in the BT Openzone solution:

1. Automatic channel selection during initialization  This simplifies access deployment by testing all available channels and selecting the best channel based on signal-to-noise ratio. Automatic channel selection provides the clearest and most available channel connections and simplifies initial channel assignments to assure that APs maintain optimal channel configuration. It also helps administrators to optimize cell planning.

2. IPSec tunnel outage and recovery  When the PSC initializes, the IPSec tunnel will be established for only the end-user traffic to pass through. Routing through the IPSec tunnel can be based on either the destination IP or source IP. For example any traffic to btzone.net will use the tunnel. Keep-alive will also be maintained on the tunnel.

3. Encrypted shared secret between PSC and SSG resulting in a higher degree of security for the location

device in connecting to the Wi-Fi SSG gateway deployed at the central data center.

4. Remote Monitoring and Remote Management of PSC- When a controller configuration is changed, it is possible to apply these changes to the controller without rebooting it. The PSC, being self-configuring and remotely managed, has provisioning script allowing the installation requiring only a broadband connection to the Internet and making it functional immediately. The PSC's current configuration can be viewed as well. For most locations, the installation process consists merely of connecting the PSC to the broadband connection via an Ethernet cable, and powering up the unit. For these locations, installation costs are eliminated, making a Wi-Fi deployment business case much stronger. The bulk provisioning of the controllers makes the case stronger still. Bulk update of controller configurations is possible as well. On the fly configuration management makes the provisioning simpler.

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