WHITEPAPER

REDUCING TOTAL COST OF DEPLOYMENT

on multi-site router roll outs for
Systems Integrators and Service Providers

DrayTek

Router - Switches - Managed Wireless - VoIP

INTELLIGENTWIRELESS
MANAGEDCONNECTIVITY

Background

When deploying routers into multi-site networks, provisioning teams are increasingly looking for ways to simplify the process, reduce resource requirements and ensure that the solution is delivered to the customer's satisfaction often within tight deadlines. This applies both to the initial stage of provisioning and also to post deployment scenarios when a specific configuration change may be required to be implemented across the entire estate.

In this Whitepaper we show how a centrally managed system complemented with business class routers that offer the reliability, control, features and affordability can help Systems Integrators and Service Providers simplify processes and reduce the total cost of deployment whilst meeting the customer requirement.

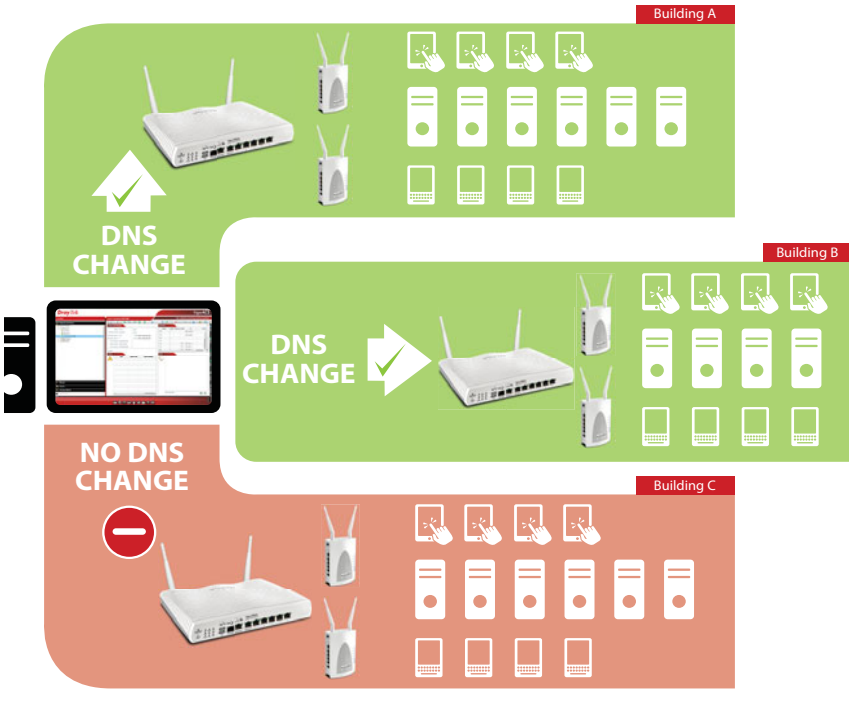
Challenges associated with multi-site provisioning

Whilst every installation has its unique challenges the following are typical of most installations:

Pre-configuration of devices - Taking the scenario of a multi site network roll out with hundreds or even thousands of remote sites the importance of accuracy and efficiency in the provisioning process cannot be overstated. Typically each router will have a standard configuration that applies to the entire estate plus bespoke settings e.g. unique log -in and password relating to the specific site. The combination of scale and site specifics often combined with tight roll out deadlines can create major resource implications for the provider.

A central management tool (server) can assist with this process by simplifying the input of configuration settings that can in turn be deployed automatically to all the devices. An update file containing all the settings for each router can be created off line and then uploaded to the server. These settings can then be downloaded to each router via the management tool either prior to shipment to site or after they are commissioned at a later date depending on the preferred methodology.

Provisioning changes -
Once the network has been deployed, there may be requirements to make site wide changes. These can occur immediately after roll out, for example a change to a security setting or during the lifetime of the network numerous adjustments may be needed such as DNS settings, firewall rules, and a host of other potential options. For provisioning teams the challenge is to make the changes effectively across the entire estate and to test and measure for any potential impact on other elements of the network.



High end provisioning tools allow for configuration changes to be set within the management system and then rolled out in pre-defined phases. For example a specific change may be applied to 5% of the network estate; stability can then be monitored over a period of time before the changes are applied to more devices. These can be scheduled at specific times, typically low usage periods in appropriate volumes.

A central management tool provides control throughout the provisioning process and should provide critical elements such as on-line monitoring, backup and restore, firmware updating and control and inventory management.

Online Monitoring - Across an estate there will inevitably be contrasts in usage, network performance and overall set up from site to site. A key challenge to the provider is to maintain overall customer satisfaction over the lifetime of the network whilst accepting that in a sense every site may be different. A specific issue on a specific site may only be a one in a thousand situation but can become acute and high profile as far as the customer is concerned. The ability to proactively monitor network performance to identify bottlenecks and/or unusual usage can allow for corrective action and the avoidance of an escalation taking place.

Once provisioned a central monitoring system can be used to check connectivity, line speeds and traffic usage. This can be utilised throughout the lifetime of the network for troubleshooting and identifying traffic patterns such that the network can evolve according to usage.

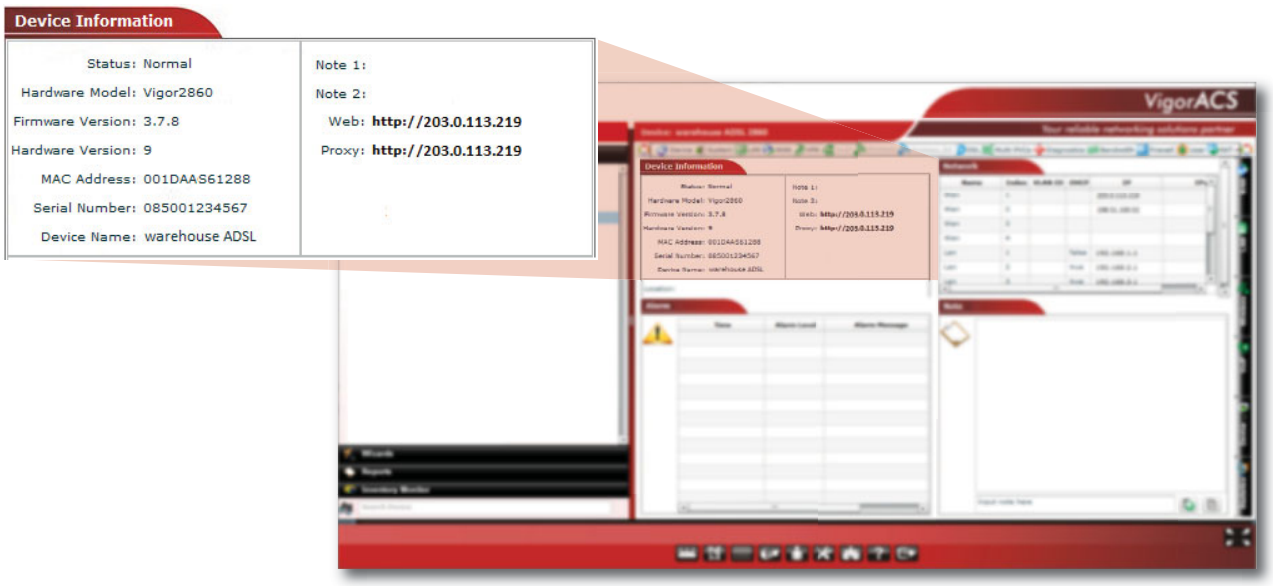
Backup and Restore - Over the lifetime of a multi-site network, especially where equipment is installed in dynamic environments and sites may lack specialist networking skills, a variety of issues may occur outside the control of the provider. In some extreme situations it may be necessary to reconfigure or even rebuild a router from its base factory setting. Traditionally this would require a site visit from a skilled engineer with associated cost implications and potential delays in problem resolution.

A router configured with a bespoke factory default setting combined with the right central management tool offers an alternative to a site visit. A specific router can be completely reconfigured from its base settings remotely saving time and costs associated with employment of a field engineer.

Firmware updating and control - When new features become available on a specific product it will typically be necessary to update devices with latest releases of firmware. As with any estate wide changes, a new firmware update can create challenges for provisioning teams that need to ensure every site has the upgrade and that full testing occurs prior to the main roll out.

As referenced in the provisioning changes section the right network management tool combined with a phased roll out plan helps ensure that such changes occur in an optimal manner.

Inventory management - Keeping track of every device on the network is essential for change management and troubleshooting therefore all relevant descriptive information regarding devices such as model, MAC address and firmware release may be stored on a central management server for future reference.



Reducing Total Cost of Deployment

Using a combination of the right deployment tools and associated routers delivers excellence in quality and service to the customer whilst significantly reducing costs.

Product costs – Business class ranges of routers and firewalls that offer high functionality can also offer great value for money and subsequently reduce overall costs of network provisioning.

Resource savings on initial configuration – A business class central management tool can auto configure an entire estate of routers using a provisioning tool.

So what are the benefits?

- Reduction in resource and expertise required to configure a large quantity of routers
- In router only installations use of the remote configuration tool may eliminate the need for "man in a van" attendance on the vast majority of sites thus considerably reducing manpower costs
- If site attendance is required, for example when multiple products need installing, a provisioning tool can help reduce the time needed to complete the installation. Furthermore less router specific knowledge is required of the engineer offering more flexibility in resource management

Post Install Troubleshooting - after a major roll out some sites can require special attention due to issues specific to site. A monitoring and reporting function can quickly identify issues associated with the line, the router setup and LAN allowing for remote troubleshooting that can result in problem resolution without the need for a site visit. If a site visit is required...

the information gathered can help identity the specific issue thus assisting with the timely resolution.

Change management - during the lifetime of a network inevitably changes will need to occur from time-to-time. For example it could be a DNS setting, a change in SSID profile or a new firmware release that needs to be rolled out. A provisioning tool can be set up with scheduled parameters to update an entire estate, a group or individual device at a specified time. This allows for test and measurement on a small section of the estate prior to fully updating all devices.

Last resort - In some environments, for example busy retail outlets such as pubs and restaurants devices can get accidentally manhandled. Occasionally a router may be in-advertently rebooted such that it defaults back to factory settings and indeed other situations can occur that can lead to a router not working in the way it was intended.

A good business class router can be pre-configured with a bespoke factory default setting that automatically contacts a server that in turn downloads the specific configuration for that site. This is an ideal "get you out of trouble" tool that may be used in situations where it's necessary to restore the router to its base setting. This tool can quickly resolve a customer issue therefore negating the requirement for a site visit, improving customer satisfaction and reducing the resource requirement.

Conclusion

A business class management system complemented by a range of robust routers will deliver the quality and reliability required for mission critical networks whilst reducing the Total Cost of Deployment to the service provider.

End user customers including high street retailers, hotel groups, restaurants, housing associations and many other large organisations with multiple sites need the peace of mind that their chosen network partner can support their business securely.

Written and produced by DrayTek UK
More information can be found by visiting: www.draytek.co.uk