



CACHEBOX and DNSBOX accelerate web access in Liberia

CHALLENGE

No fibre connection in Liberia so bandwidth is at a premium

Many users connecting to each customer router placing high demand on bandwidth

Video sharing services and other Content Distribution Networks adding to the strain on bandwidth

SOLUTION

CACHEBOX230 deployed in WCCP setup for enhanced redundancy

DNSBOX200 to provide local DNS service removing latency experienced with the free service previously in use

BENEFIT

30% or greater bandwidth savings including on video and social networking traffic

Improved customer experience with a reliably faster internet connection

Responsive support service which dealt with WAT's DNS issue effectively to protect their reputation with customers.

There is no fibre connection between Liberia and international networks so WAT uses a WiMAX network to provide broadband, voice and fax services to over 500 business and residential customers in Liberia. Using a 50Mbps satellite connection for backhaul, WAT needed to ensure it made effective use of limited bandwidth.

About West Africa Telecom

West Africa Telecom (WAT) is a fully licensed broadband service provider operating in Liberia. Providing an alternative to commonly used 3G mobile data services, WAT offer broadband services via WiMAX with satellite backhaul.

Relieving the CDN strain

As one of only a few broadband ISPs operating in Liberia, WAT's customers rely heavily on them for dependable, high speed internet access. Up to 6 users connect to each of its customers' routers, often sharing low bandwidth services. WAT knew it would be challenging to give end users a high quality broadband experience.

Fixed telephone lines are available to only 0.1% of Liberia's population, whilst mobile penetration is over 50% making it the method of choice for voice communication. As such, many of WAT's customers do not use the network for voice and the vast majority of traffic is HTTP.

"Many of our residential customers use the internet to access email, social media networks and free software sites which demand a lot of bandwidth," commented Kamal Essalai, West Africa Telecom Chief Operating Officer. "Video sharing services like Youtube were also adding to the strain on our bandwidth."

CACHEBOX230 using Web Cache Communication Protocol

"I was approached by local Systems Integrators who offered to build custom caching solutions for me," noted Kamal, "but although I knew that caching could improve our customer's connection speeds, I also wanted a proven and supported solution. Researching my options, I found vendors of very expensive products for which caching was only a small part of what their equipment could do."

"Then I found **CACHEBOX** - appliances focused solely on caching and much more affordable. The product has been in the marketplace for over a decade and was designed specifically for ISPs with the problems I faced. With reference customers to talk to in my space, I had the peace of mind to try it out - especially as it wasn't going to be a large investment."

West Africa Telecom purchased a **CACHEBOX230** and deployed it using Cisco's Web Cache Communication Protocol (WCCP), present on Cisco routers and switches (and one or two other brands) for establishing interaction with web caches. WCCP establishes and maintains the transparent redirection of traffic, optimises resource usage and improves redundancy. This was ideal as WAT wanted to be sure that in the event of an issue, network traffic would continue to flow.

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An appliance provider that can be relied on for support

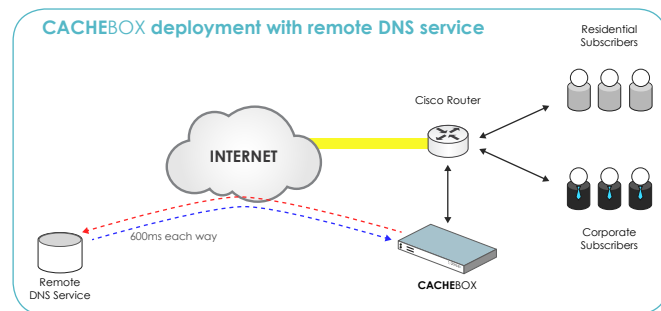
Achieving bandwidth savings of 30% and more, WAT's customers immediately benefited from much faster internet access. "My customers' experience was improved and they trust WAT to provide a reliably fast connection," Kamal explained.

As well as caching performance that could deliver significant bandwidth savings, WAT also needed a provider that they could rely on for responsive support. Kamal told us that "any disruption to our service results in a large number of customer calls. I needed an appliance provider that I could rely on for speedy support and ApplianSys has been excellent."

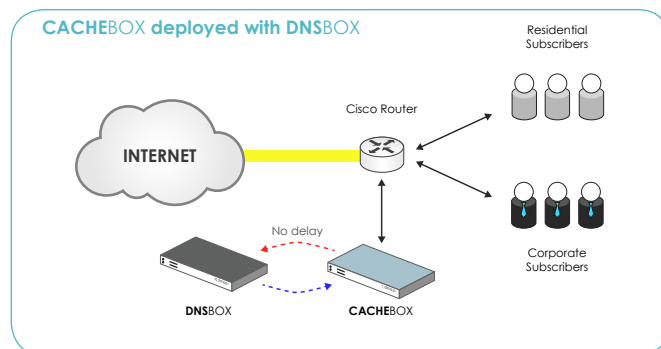
Improving CACHEBOX performance with faster DNS resolution

WAT's customers initially experienced lower speed improvements than expected, even though the **CACHEBOX** was achieving good results at the network core. Looking to resolve this, ApplianSys' support team analysed the traffic going through WAT's **CACHEBOX** and found that DNS was the problem.

Each time a customer requests a URL, **CACHEBOX** looks up the IP address from a DNS server before checking whether it has the content in its cache. As WAT had been using Google DNS this lookup process required a request to be sent over the internet and a response to be received, increasing the time taken to serve content to the end user. At peak times, this would result in very high latency.



"ApplianSys were very responsive and quickly identified my issue. They suggested that deploying a DNS resolver locally would solve the problem. Having already had a good experience with an ApplianSys equipment we decided to go for an additional appliance - a **DNSBOX200** for DNS cache. This resolves DNS locally, caching any repeat requests (a high proportion). So our customers benefit from faster web access."



Summarising his experience of ApplianSys, Kamal concluded "now, when I receive calls from system integrators, I recommend ApplianSys as a provider of excellent off-the-shelf solutions. We'll be adding an additional **CACHEBOX** for redundancy and peak load sharing for what is now an essential component of our network and the service we deliver to our customers."