



Delivering a first glass network solution

PSV Glass and Glazing is the leading specialist glass distribution and installation company in the UK & Ireland, supporting the Public Transport Industry. It supplies replacement glazing for all bus, coach, rail and motorhome applications.

Incorporating the brands PSV Glass, Bus & Coach Glazing, 1st Glass and Coach Glazing Services it is the only dedicated glass distribution and installation business offering a 24/7 service nationally, which means they are also the chosen partner of many of the industry's leading vehicle manufacturers, and the country's largest transport operators, supporting them and their businesses to help keep the UK & Ireland moving! They've even replaced the broken screen in Britney Spears' tour bus!

And, because it's vital, they are available around the clock. It is essential they have an enterprise level network, phone and call centre solution they can rely on which is why they made the switch to Xcomm across their UK and Ireland estate.

Background

With their National Head Office in High Wycombe and large depots, holding stock for 1000's of PSV vehicles (buses, coaches, trains and motorhomes) strategically located around the UK and Ireland, PSV Glass and Glazing's network and phone system had been consistently unstable and unreliable despite having several service providers try and solve the issues over a number of years.

The issues, which were numerous, included: a phone system that regularly had faults resulting in calls not connecting, non-existent integration with the NetSuite CRM system so call

AT A GLANCE

Challenges

- Replace legacy network
- Provide scalable nationwide solution
- Seamless transition for 24/7 business

Benefits

- Reliability and resilience built-in
- 100% uptime
- Increased productivity and customer satisfaction



“We switched to Xcomm and since that time, we have had a seamless service with no interruptions. It's been undeniably brilliant.”

Phil Powell

PSV Glass and Glazing





centre staff were unable to provide the best level of customer service, the network was slow and regularly stopped working, the internal bandwidth was congested making it slow and intermittent with users not being able to access what they needed to do their jobs and the wireless network was constantly breaking, rendering it unusable.

PSV's Purchasing, Technical and IT Director, Phil Powell, was so fed up with all these issues he was about to award BT a contract in the hope they would fix it all when he was introduced to Xcomm by NetSuite solution provider, NoBlue.

"We've had sporadic connection problems throughout our entire history of being in our National Head Office building, whether it be a Wi-Fi connection or a connection to our servers on the LAN," said Phil. "When we spoke to the team at Xcomm their in-depth understanding of our requirements and level of expertise was immediately apparent. What we were about to buy wasn't suitable whereas Xcomm's proposal went into such detail about what we needed and why, which was exceptional."

Chris Harbour, PSV's Commercial Manager agrees, "The technical expertise of the engineers at Xcomm was clear the first time I met them, which was to show them around the building. They won me over. And, they've proven to be so ever since. Every time you need any help or support, they've been brilliant."

The Challenge

PSV Glass and Glazing has several depots around the UK and Ireland including Bristol, Derby, Manchester, Glasgow and Dublin, as well as their National Head Office and a depot in High Wycombe.

The network had grown sporadically over a number of years with some hardware and software support at end of life. There was no resilience built in. Each site had at least one Internet access circuit and Meraki

firewalls, the LAN cabling needed upgrading and there was a myriad of hubs and switches located all over the place in the various sites. The inadequate wireless access needed to be upgraded and connection issues through the Azure cloud and to NetSuite needed resolving.

Due to the nature of PSV's business - warehousing for the storage, distribution and installation of laminated windscreens and toughened glass for PSV vehicle, train and motorhome applications - this led to a particular problem in relation to the Wi-Fi signal propagation.

As they ran service contracts for national transport sectors, the ability for their telephony and network to maintain operation to support their sales and operational staff was paramount to their business. Over the course of a couple of years, the in-situ IT provider had moved all internal services / servers to the MS Azure cloud.

Originally PSV was considering replacing all site LAN cabling, switches, firewalls and access points and also putting in a new telephony solution.



**Phil Powell,
PSV's Purchasing,
Technical and IT Director**



Other Issues included

- Poor performance when accessing the general internet
- Poor performance of the internal LAN
- Internet outages
- Particular issues when accessing the CRM system via the cloud (NetSuite)
- Geo-Location related searches only being related to Ireland or Redmond
- Fault tolerance not working or being non-existent on external circuits, no failover
- LAN cabling faults
- Poor Wi-Fi performance in particular locations at virtually all sites
- Telephony outages for long periods of time.
- No telephony integration with NetSuite
- Some CPE was end of life and out of support

The Solution

The works were programmed in stages to ensure each element of the solution could be tested and proven before moving onto the next part of the solution. This allowed Xcomm to demonstrate to PSV the benefits of the work every time a major regrade, or upgrade took place.

LAN side

The Xcomm team went to work to upgrade and streamline the PSV network removing old and, in some cases, obsolete switches across the group and replacing them with new Cisco Catalyst switches.

In the High Wycombe head office Xcomm migrated the network over to the new Cisco Catalyst range of deployed switches which were configured as part of a redundant loop so that in the event of a switch or link failure the network would continue operating by automatically moving data in the opposite direction of the loop. To ensure business continuity the work was undertaken in stages and out of hours when the



resources were less utilised. This work was completed over the span of several nights, with testing and configurations being managed as the project progressed.

Xcomm attached all the satellite racks around the site to the main rack using redundant ethernet cables & fibre links. Appropriate testing was carried out on all the cabling as Xcomm progressed through the various areas, ensuring that the network performed as anticipated.

At the other sites around the UK and Ireland a similar approach was taken, again applying resilience network design where appropriate.

More than 20 new Cisco Catalyst switches were deployed across all sites and at certain key sites



multiple switches were configured to provide resilience using a hybrid three-tier and collapsed core technology across multiple switches, all connected via the 1Gb SFP ports all interconnected in a fibre loop using Cisco's proprietary PVRST (Per VLAN Rapid Spanning Tree). This feature manages and controls the redundant links between the switches. This provides seamless fault tolerance in situations where a link or equipment failure occurs.

After works on all switches across the group were completed, all sites re-patched and network points tested and repaired where needed, Xcomm removed all the now redundant hardware from all locations including the HPE 5412ZL Modular switch from the head office. PSV were moved away from dedicated voice and data LANs to agnostic port selection whereby the switches themselves decide which VLAN routing the traffic will take irrespective of what's plugged into the network ports. All Switches that were not end of life, including all Meraki MS switches, were reconfigured and re-deployed to avoid unnecessary expense to the customer.

Firewalling and Routing

Moving on from the company's LAN switching, Xcomm turned its attention to the firewalling issues PSV were experiencing. All the sites were protected by Cisco Meraki MX Firewalls and these needed to be reconfigured. Implementing the load balancing and automatic failover features of Meraki's SD-WAN

configuration for multiple WAN interfaces allowed seamless failover for critical functions (IE: Telephony, Cloud-based Remote Desktops) allowing PSV to remain operational regardless of external supplier or internet failures. Xcomm was able to retain the Meraki MX firewalls with Advanced Security Licensing and after full reconfiguration of the MX Settings true failover was fully operational.

Traffic shaping across the dual WAN interfaces was performed, segregating low-bandwidth and latency sensitive applications (VoIP) from bandwidth intensive and latency tolerant applications (RDP, HTTP(s)). During times of internet connectivity problems on a single WAN, the Meraki firewall automatically detects the outage and re-routes the data to the working WAN interface. This guarantees the best QoS and customer experience, minimising downtime and lost revenue due to network/service unavailability.

All decisions were based on thorough testing of the circuits via Xcomm testing systems using performance metrics gathered through Meraki's dashboard, external PING and SNMP polling. New Meraki MX firewall appliances were installed where needed.

One of the components that was critical to the implementation of the solution was the Meraki MX range of firewall appliances provisioned with the





Advance Security system licensing across the estate. This allowed Xcomm to have a homogenous view and control of the types of traffic that was transiting the security system as well as the VPN connections implemented.

Xcomm was able to validate the intention of the network structure against what the systems saw via the Meraki Dashboard in addition to performing specific diagnostics with basic tools like packet captures.

Xcomm then moved onto PSV's WAN side issues which primarily revolved around slow or no internet access. They had extremely slow access to their cloud-based systems, especially NetSuite. The above firewall reconfigurations and changes in traffic shaping meant that the latencies experienced in the outbound traffic disappeared and access to all cloud-based systems immediately improved.

Networking

Whilst all of the above was being undertaken new Internet access Circuits were being installed at all sites and all the old circuits were being terminated. New circuits were no longer provided via a single network provider but instead Xcomm purchased access circuits via Openreach and Virgin tails across the group's sites to spread physical, in the street, network resilience. In the head office, dual vendors were installed. In addition to street level diversity, Xcomm used multiple ISP vendors to run their services over the

access circuits, providing vendor and ISP resilience. Where true street level resilience could not be gained, Xcomm installed Starlink services to provide the failover solution. All sites with dual circuits were all configured in failover mode via the Meraki MX Firewalls, with IP Session based load balancing applied.

Telephony issues

PSV were encountering various challenges with their existing cloud-based telephony system, encompassing issues such as operational disruptions, subpar call quality, recurrent global outages, and the absence of promised integration with their CRM system, NetSuite. PSV agreed to proceed with the Xcomm Hosted Telephony and Call Centre Solution.

Telephone systems were replaced with the Xcomm hosted IP telephony service which is an independent Hosted Telephony platform. This service sits on the Xcomm servers located across diverse data centres including a London Telehouse. The service which has DR availability built into it can run from any Xcomm DC location in failover mode ensuring uptime availability. The service which provides full PBX features and call centre services replaced the current inhouse system. The Xcomm service connects back to the Xcomm DC's and the Xcomm redundant SIP Servers and from there to the PSTN. All numbers would be ported across by the Xcomm porting team to the Xcomm platform.





NetSuite integration was not present on the in-situ phone system, and this required coding work specific for the PSV NetSuite instance. Coding the Xcomm system to NetSuite would allow PSV to make and receive calls via the NetSuite client with all call records being correctly logged in the NetSuite system. All call recording would also be logged and held in the Xcomm secure cloud. Users could then either hear the call recording from the NetSuite client or via a call recording portal supplied by Xcomm.

All call centre users were moved over to the Xcomm call centre service and wall boards showing all activity were tailor designed to PSV's requirements.

All users now have desktop clients, Cisco handsets or softphones and headsets.

Wireless Access

All access points were reconfigured modifying power



levels and channel selection to minimize interference and maximizing network availability across the entire coverage area. New corporate and guest networks were introduced. Multiple additional access points were installed to ensure consistent coverage wherever a user is in any of the buildings. Use of both internal and external access points providing coverage across loading bays and storage areas were introduced. Access points were re-sited where necessary.

Additional Meraki MR units were installed at several sites to provide sufficient coverage and remove all site Wi-Fi dead spots.

Conclusions

All existing Meraki equipment which is still years away from end of life was retained and reconfigured to reduce the unnecessary expense of buying new, which is what other companies were proposing. Correct configuration of firewalls resulted in resolving many of the issues. All critical end-of-life hardware was replaced and a group wide deployment of enterprise class Cisco Catalyst switches was undertaken.

Where possible existing viable hardware was reconfigured and load balancing, along with HSRP (Hot Standby Routing Protocol) being applied on both the circuits and firewalls.

With the network running smoothly in the background,





PSV's staff can offer a much higher level of service through the call centre and across the company with Cisco handsets installed across all sites onto the Xcomm hosted PBX. New code now integrates NetSuite with the Xcomm hosted PBX enabling all users to access it via the Xcomm call centre system, providing better call handling, quicker response times, call recording and in-depth analytics.

The solution was managed by Xcomm from start to finish with the switchover to the new system happening with no interruption to service.

All customer issues were resolved, and no new issues reported. 24/7 support and monitoring is now in place via the Xcomm support department. All firewall security updates are real time and currently providing the highest level of Cisco Meraki security.

"We knew that by moving to Xcomm we were going to get the attention to detail that this was going to require, and we didn't have to involve ourselves at all. We didn't want to be involved and wanted to be reliant on someone that knew what they were doing to solution it. And that's exactly what happened, explains Phil. "It's a joy. I couldn't tell you how they did it. It just happened."

And Chris agrees, "Actually, the move was better than we thought it was going to be, it was absolutely seamless. We expected some problems. Maybe some initial hiccups. But no - it all went perfectly. We're not saying that for effect. It was completely trouble free."



Chris Harbour,
PSV's Commercial Manager



The Results

Improved security, resilience, business continuity and better business performance is now built in to PSV's scalable network. All the connectivity issues have been resolved improving employee productivity and customer satisfaction. Market leading Cisco and Cisco Meraki switches and firewalls, with Advanced Security Licencing have been deployed as standard, giving the PSV team peace of mind.

"One of the key benefits of our system is uptime. It now works 100% of the time," says Phil, "whereas before we had a lot of downtime at very important parts of the day. Now we don't experience any of that loss of business.

"And our staff are much happier as we no longer get any complaints. With our old phone system we used to get complaint after complaint. Plus, the voice quality wasn't good, and we had quality issues throughout the day as we couldn't hear one side of the conversation. Now that's all spot on."



Other benefits of the new solution include significant cost savings on the initial installation, plus now not incurring the cost of lost business due to outages. The solution also enables PSV employees to be more efficient including Phil and Chris.

"I think everything is much more efficient," explains Phil. "One of the big things the old set-up took from my team was time. We were charged with not only our business systems and processes but also to look after our communications, our hardware and our users. So, from the point of view of my team's efficiency having no user issues to do with communications has saved probably 15% of our time. And it wasn't just the 15%, it was also all the interruptions when that 15% occurred, taking us away from other important tasks."

And when it comes to lessons learned Phil and Chris are very clear. "Don't ever leave Xcomm. They fit with our company ethos. They're fast, they're responsive and they know their stuff. Trust the experts to deliver.

"We wouldn't move anywhere else at all now."



"They fit with our company ethos. They're fast, they're responsive and they know their stuff."

Chris Harbour
PSV Glass and Glazing

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Providing world-class enterprise solutions



XCOMM SERVICES AVAILABLE

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