XILTRIX SERVER & COMMUNICATION OPTIONS; **A SOLUTION FOR EVERY PROBLEM**

One of the quickest changing industries in recent years has been the world of IT. Instead of an evolution, there has been a revolution. Ever faster networks and internet connection have allowed for cloud applications which anyone with a smart phone can easily access. Having an easily accessible cloud software solution for a system like XiltriX is definitely nice, but there are a number of challenges not so easily overcome.

Security

Most people working in a laboratory environment are not IT experts. They can work with a computer of mobile device, but they lack specific knowledge about security. Instead of focusing on raising security, most people see 2-factor authentication, impossible to remember passwords and having to change them every couple of months as a huge hassle. They would rather not do this because they like to just use devices as they have always done.

This also goes for the computers on which the software they are logging into is running. Many lab staff say: “Why can’t we just do things like we have done in the last decade. It has always worked correctly. We don’t want to change!” They cannot see that the world around them has already changed and without them changing with it, they are now risking their company becoming an easy target for hackers.

Internet/power stability

XiltriX systems are installed around the world, ranging from huge teaching hospitals with numerous back-up generators and redundant internet supplies,

to labs with unpredictable internet access and no power back-up what so ever. All of these customer need XiltriX to work reliably and keep on working when a calamity situation occurs. They need to get notifications of this especially if something goes horribly wrong.

For this reason, not every lab can be supplied with the same solution. If internet connection are unpredictable and mobile providers as well, cloud servers are not the best solution. Large facilities also do not want their data to be handled by a third party, but like to have control over their own virtual environment. Medium sized companies however, without an IT department mostly welcome the idea of being able to outsource the responsibility of setting up and maintaining servers.

Updating and patching

Every server physical or virtual is only as secure as the latest security patch. The chain is as strong as the weakest link, so therefore a holistic approach has to be taken. All parts of a monitoring system need to be up to date, all communication needs to be secure and all clients need to adhere to a strict security policy to prevent incidents. Also, the system must be able to allow for individual interventions in case a device in compromised and needs to be disallowed access immediately. This whole process is not a one-time exercise, but needs to be repeated over and over again.

How is XiltriX built-up?

All XiltriX systems XiltriX 5 as well as XiltriX Saturn are deployed on a Linux Tumbleweed distribution which uses a rolling release model. This means the system does not have a version, but can be updated continuously to be kept up to date. This model takes away the need to do a complete OS migration every 3 years, if a version of the Operating System goes End of Support. In doing so, the costs for the maintenance are more predictable and upgrades can be kept to a minimum.

Aside from the OS components, XiltriX uses up to date libraries to create the XiltriX monitoring system. This ranges from an Nginx secure reverse proxy to a PostgreSQL database in XiltriX Saturn. All of these components are supported and will receive updates every couple of months.

Physical servers

For customers with unstable internet or very strict security policies, XiltriX offers two types of Supermicro servers. A 1U barebone servers and a 1U server with redundant disks and power supplies. Both servers are capable of running large systems, but come with a different price tag.

The barebone server is small and can be placed on a lab counter. Although it has an optional rack mounting kit, most customers use it for smaller systems. It is quiet, produces almost no heat and runs on a lightning fast Samsung NVME drive. This way customers can login with multiple users and still access the system with great speeds. With an integrated USB back-up device, data is still kept in two locations, so if one of the drives fails the data can be restored from the back-up location. Because the CPU in these servers in not power hungry, this server can also run for quite a long time on a small UPS system. In case power supplies are not predictable, this gives the user the opportunity to receive notifications and track the calamity before the device runs out of power.

The 1U server is a redundant version of the barebone server with dual Samsung SSDs in a RAID 1 configuration. With redundant power supplies this server will keep on running even if one of the power supplies no longer does. The hot swappable

capabilities of the RAID system with automatic rebuild of the RAID array allows for the security customers desire in environments with high value samples that need safeguarding.

Virtual servers

Customer that do have predictable internet and power mostly like their server to be virtual. Regardless if the servers run in an on premise data center, or are installed in an off-site data center, the challenge is a little different. The XiltriX server will have to be integrated with the network of the customer and the security policies of the IT department. A lot of customers also want the solution to be installed in High Availability (HA). This is not always easy and needs skilled people to be able to make a design and discuss the available options with the respective experts of the customer. XiltriX takes customer by the hand in every step of the way with consultancy, design, installation support, action plans, training and validation. Working together closely with the experts of a customer site a fine-grained and secure solution can be designed that is kept secure and supported every step of the way.

Cloud servers

For a lot of solutions building a cloud platform is not so difficult. Their customer base requires the system to be secure but it does not have to adhere to accreditation regulations for Medical environments. Cloud systems are usually updated every week to improve issues and performance and to quickly add functionalities without going through a validation process. This goes against everything that regulating bodies request the customers to be “In Control”. XiltriX provides a cloud solution that is secure in every way, but instead of a true SAAS solution, it is an IAAS solution provides as a services. You could call it “XiltriX As A Service” (XAAS) if you like. By taking away the fear of not being in control though this solution fits the needs of medical of pharmaceutical environments much better and can be validated according to the 21 CFR part 11 and GxP regulations.

Communication redundancy

If customers are using a cloud solution, they are

immediately relying on a stable internet connection. This is not always possible so XiltriX provides a gateway that has not one but two 4G backup modems that can automatically take over the internet connectivity in case of primary connectivity failing. This unique functionality allows for the XiltriX to use the primary internet connection of the customer, but also allows for completely independent installation with no fixed internet connection with redundant 4G internet connectivity. This device will also allow for SMS notifications in case of parameters of devices going out of bounds.

VPN connections and access control

All communication between the monitored site and centralized server location will need to be encrypted. This can be provides by building an IPsec tunnel, or by allowing the Teltonika to build an OpenVPN tunnel over the open internet. Both solutions are equally secure, but can be deployed depending on the customer’s preference and adherence to security policies. The XiltriX cloud server is not published to the public internet without additional security measures. Clients can be allowed (and disallowed) access by means of a client certificate or individual OpenVPN connection. These additional security measures allow XiltriX to block compromised clients without running the risk of compromising a complete system.

Maintenance and support services

If customers decide to go for a XiltriX system, they need not just a one-time installation, they need to be supported continuously. XiltriX has a unique 24/7 support system with XiltriX engineers on call. This

support service is part of the XiltriX support contract and will offer the required support if a calamity happens. The automated ticketing systems allows for registration and quick resolution of all question and issues with continuous traceability and adherence to the GDPR regulations for information handling and record keeping.

Unburdening

Having spent the last 20 years in the monitoring business, I have seen a lot of customers having no clue what they are buying into when they are ordering a monitoring system. They hope for the best, but not being an expert in the matter, they sometimes see they have not made the correct choice buying a competitive solution and will have to live with it for a number of years because of budgetary restraints. XiltriX recognizes the fact that customers are no experts on monitoring systems and will invest time and effort to show that XiltriX is your partner in monitoring every step of the way. With customers relationships spanning more than 30 years, we know what is needed to provide complete unburdening!

XILTRIX
PROTECTING YOUR SCIENCE

If you want to know more of what XiltriX has to offer. Please go to our website at www.xiltrix.com or send an inquiry to sales@xiltrix.com
Best regards, Han Weerdesteyn CCO