ZEBRA

CLOUD CONNECTING
"LAST MILE" DEVICES

When considering all those intelligent devices used today, it is highly noticeable how they have matured and outsmarted their original versions. They're doing so much more than the single point task they were traditionally designed for. Phones aren't just phones anymore. Televisions aren't just passive receivers. Nobody favors watches that are limited to... well, telling the time. The same goes for many others, like cameras, thermostats, and yes, barcode printers. All those single purpose devices are morphing into something a lot more sophisticated.

These devices can be thought of as "Last Mile" units. Many act only as display or output units, but some have the ability to consume and share user input upstream. They have typically lived at the outer edge of networks, frequently disconnected from the broader enterprise, or at least connected to just a small segment of the broader corporate system. What better example of the latter than those relative newcomers into the world of smart devices: thermal barcode printers. They are an important component of enterprise daily operations which should be considered in this category.

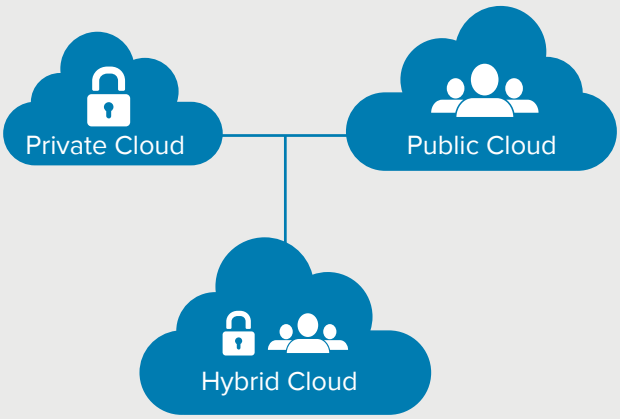
Connectivity, mobility and integrated systems have made it possible for these Last Mile devices to do more. All these devices can now connect to a broader range of intelligent systems, making them more valuable, but this is also raising some questions. Over time, it is certain that more Last Mile devices will be connected to the emerging Cloud infrastructure. As these devices become part of the Smart, Connected Enterprise, what should our expectations for them be?

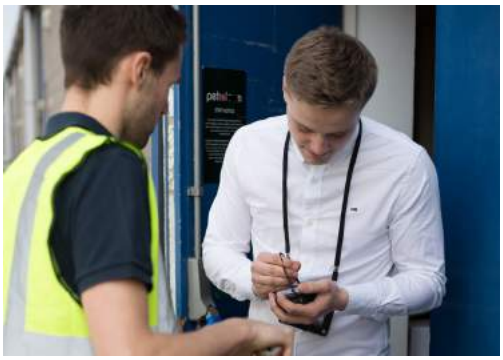
CLOUD TECHNOLOGY IN MOTION

The Cloud, as we know it today, didn't emerge along a straight line. There's been plenty of clear – as well as stormy – skies along the way. Multiple competitors and innovations led to the platforms that users rely on today. But, Cloud technology hasn't been, and likely never will be static and unchanging. As devices mature to connect to the Cloud, they are expected to be equally flexible and adaptable. All of them, including thermal barcode printers, must be easily updatable to seamlessly incorporate new connectivity and privacy standards.

There is also a generational workforce factor that will increasingly come into play over time. Current users have one set of expectations for Last Mile devices – those just now entering professional life will have little patience for devices that don't connect and "play nice" with the Cloud. The Network Admin of today may cherish the air-cooled, tightly structured and closely managed server room, while incoming staff may simply ask "why is this even here?".

One key factor to plan for is that today's Cloud destination may not necessarily be tomorrow's destination. **Over time, the Cloud platform that enterprises use will vary – from Public through Private, to Hybrid contexts, but also from one Cloud platform provider to another.** Just as apps and databases have to be ready to port from one system to another, Cloud connected devices must be ready to agnostically move from one system to another. Careful thought should be given to using proprietary technologies vs. the benefits of more flexible solutions.





DEVICE LIFECYCLE FLEXIBILITY

Lifecycle flexibility is crucial when durable Last Mile products are considered. While some may last just a couple of years, many industrial devices are designed to serve for many years at a stretch; this is the case of thermal barcode printers. We need to keep in mind that, over that long lifecycle, network standards are likely going to change. The ability to be easily updated is crucial – the capability to be updated remotely is even more valuable, as enterprise devices tend to be dispersed over wide geographic areas. Users need to choose printers that are intelligent well beyond speeds and feeds, fully prepared to grow and change, and ready for a smooth transition to a cloud system when the time comes.

DEVICES AS GOOD NETWORK CITIZENS

Network users receive many alerts about system best practices, password upkeep and other issues. When it comes to being a good network citizen, devices have the same responsibilities as users do.

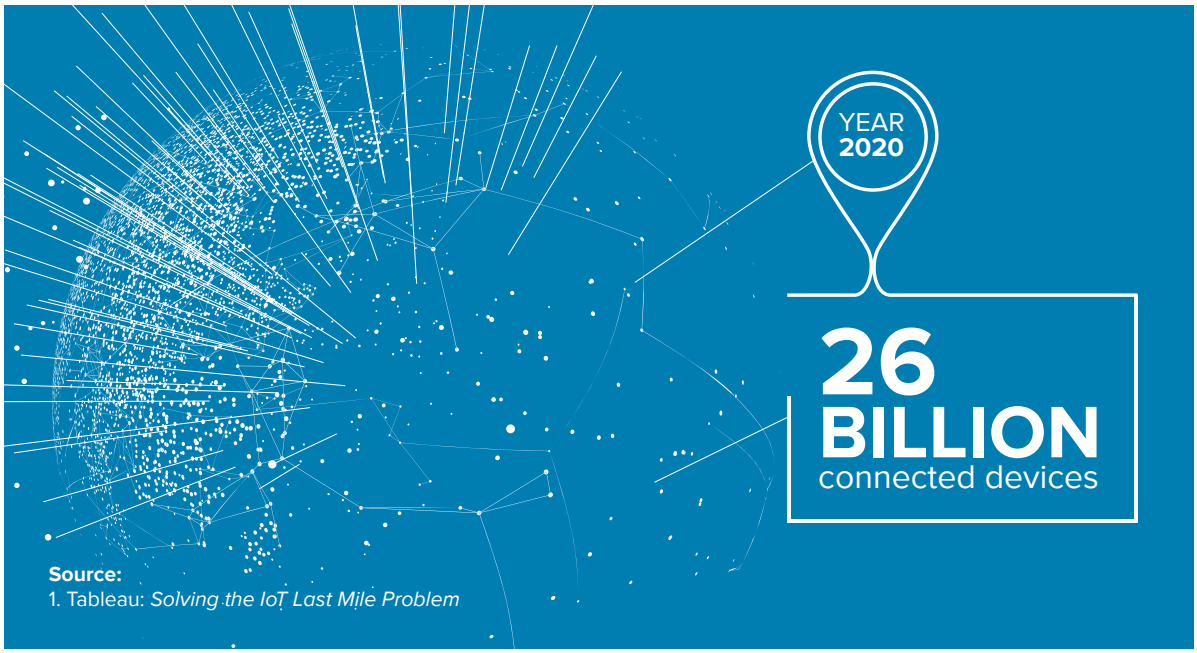
Devices that are going to be connected to enterprise Cloud platforms should offer encryption technologies to ensure exchanged data is protected. Authentication should be used to ensure that only authorized devices are allowed to connect. Because connecting many thousands of devices can become an easy task, the protocols used to transfer data should apply the appropriate traffic management technique to optimize data content and avoid disruptive congestion. We can't stress enough the importance of including thermal barcode printers in these considerations, ensuring they also meet the required standards to become good network citizens.

DEVICE MANAGEMENT

The sheer quantity of connected devices does not cease to grow. By 2020, according to Gartner, Inc., there will be nearly 26 billion connected devices.[1] These connected devices should be easily manageable from a remote and centralized location. Management systems should be able to offer ways to group and filter device lists so only those needed to be viewed, at any given time, are displayed on-screen.

Next, as devices are brought online, it is crucial to plan how these devices structure data so minimal effort is required to integrate incoming data with existing systems. Proprietary or overly complex data schemes that don't easily feed into common data systems (such as XML) should be weighed against their benefits and opportunity costs.

Cloud-hosted management is quickly becoming the new norm. With more organizations adopting the new technology, it makes sense to extend it to thermal barcode printers and prepare for the future with a Cloud-compatible printer management solution. Doing so will put amazing flexibility and control within the reach of the IT department. Plus, pave the way for printers to act as data-collecting machines for big-picture visibility that can improve decisions and operations across all departments.



Source:
1. Tableau: *Solving the IoT Last Mile Problem*

AS EASY AS API

Moving devices into Cloud connected systems frequently means pulling in additional development resources, as systems are stitched together. Here is where Application Programming Interfaces (APIs) become a crucial component of device/cloud integration. Many legacy device types come with a specific command set and device management techniques, meant to maintain backward compatibility. Application Programming Interfaces help developers access legacy device functions without having to learn all the ins and outs of legacy systems. A well-structured API, with documentation and openly available source code examples, can not only shave months off a Cloud transition project, but can also ensure that resultant systems deliver rich, optimized data streams. When considering transitioning devices to Cloud contexts, give weight to those devices that offer a robust API, even more so to those devices that offer support for more than one programming language. This is also the case of the thermal barcode printers.

THE TIME TO PLAN EARLY AND PLAN OFTEN IS NOW

As device purchases are being considered, it is important to think about Cloud connectivity – even when current systems are not Cloud connected. As more systems transition to leveraging Cloud technology, it is in the best interest of any enterprise to acquire devices that are Cloud ready.

This is particularly true when working with devices that tend to have long lifecycles – five to ten years which is common with thermal barcode printers. The IT context of an enterprise today may not include Cloud, but almost certainly will over the next decade. It is only a matter of when. Endpoint device purchases should be planned, ensuring they are ready to make the transition to the Cloud.

Privacy rules vary greatly across geographic locals and governmental entities. As the use of Cloud systems become more pervasive, these rules are evolving and maturing. How and when data can be transferred between geographic locals is one area that should be watched carefully to ensure compliance with emerging standards and laws. The US and EU Privacy Shield Framework is one example of these emerging standards that should be taken into account when connecting Last Mile devices to the Cloud.

CHOOSING THE RIGHT PARTNER TO PROCEED

Connecting endpoint, Last Mile devices takes careful planning, thoughtful integration and continuous management. Partnering with companies that have a track record of success can make a huge difference in your project.

Zebra is leading the way by uniting world-class hardware with smart software, to create intelligent devices that deliver instant Cloud connectivity, unparalleled reliability and unrivaled visibility. This holds particularly true with our new Cloud-ready Link-OS printers. Combining an innovative new operating system, a powerful Multiplatform Software Development Kit (SDK) and software applications, these printers are easy to integrate, deploy and maintain.

Powered by our Cloud Connect Software, Link-OS printers connect securely and directly with the Cloud, forwarding data from any port. These printers become an integral part of an overall Cloud strategy and an important component of an Internet of Things (IoT) solution – today, or in the future.

Little wonder then that this unique interrelationship between hardware and software has garnered Zebra the trust of enterprises the world over for more than

40 YEARS

TO LEARN MORE ABOUT OUR HIGH-QUALITY, CLOUD-READY LINK-OS PRINTERS, VISIT ZEBRA.COM/LINKOS TODAY.

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