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Faster, cheaper, more accurate mobile QA

New managed USB hubs make more real device testing possible

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In a recent mobile app testing survey, 84 percent of QA organisations said they need to test on real devices in order to be successful.

Almost 18% of companies' state lack of time to test mobile apps, 65% say they do not have the right tools, and 52% cite lack of devices as reasons for not performing mobile testing.

Executive Summary

As a software developer or mobile QA tester, you already know QA (Quality Assurance) is essential for delivering your apps.

Yet you may be conflicted between the high cost of testing on real mobile devices and the convenience of emulators. One offers greater accuracy, the other, more agility.

But in a world where bugs and crashes can directly impact your bottom line, never before has there been greater pressure to give users' high-quality, mobile-first UX. And that means looking for new and better ways to manage mobile testing.

It's an issue that's affecting all industries.
In a recent mobile app survey, 84 percent of QA organisations said testing on real devices is crucial to success.

Yet mobile phone manufacturers, content providers, game and app developers, IT consultants and service providers—they all face the same niggling problems:

A) How to get more real-world feedback without spending a ton of cash on outsourcing and/or;
B) How to effectively manage their own ever growing army of devices in-house

For many, an in-house testing lab solves these challenges.
However, the daunting complexity of mobile testing and the unreliability of traditional USB hubs can be a huge barrier.

Cambrionix's industrial managed USB hubs are a unique product purpose-built to help mobile QA testers and software developers solve these challenges. They do this by meeting these requirements:

- Safe, reliable, fast charging
- Compatible with any device and any operating system
- Easy device management
- Remote and local monitoring and control
- Power saving
- Compliance with health and safety
- No more dreaded USB endpoint limitation
- API software to integrate into your processes
- Scalability
- Stringent performance testing

This paper sets out to challenge perceptions of enterprise managed USB hubs, and act as a guide for taking your QA efforts to the next level. You can apply this guidance in your role as either a mobile QA tester or software developer.

Mobile QA: Fast-paced and costly

You're committed to mobile QA. And you know real-world feedback is essential to releasing your app as quickly as possible; to preventing app abandonment, and to delivering the perfect customer experience.

But the mobile market is dynamic and hard to keep pace with

If you work for a large enterprise—you may mobile devices give you the most accurate test results—but they're not always ideal for scaling or automation.

Many types of devices are required: different screen sizes and OS. And that can mean turning to virtual devices to address the sheer volume required.

Testing on actual devices is prohibitively expensive

If you're part of a smaller business or start-up, you may find testing on real devices too expensive. Devices have to be changed frequently. Outsourcing is costly. And that means sometimes missing out on real-world feedback altogether.

> "Almost 18% of companies state lack of time to test mobile apps, 65% say they do not have the right tools, and 52% cite lack of devices as reasons for not performing mobile testing."
> **Cap Gemini Quality Report (Mobile Testing)**

If your app has bugs, people won't use your app

With mobile users more demanding than ever, competition is tough. Never before has it been harder to acquire new users. Or easier to lose existing ones.

So it's crucial for today's businesses to do whatever they can to address contextual factors, no matter what their budget, scale or time frame.

Skimping on QA to get your app out at lightning speed becomes a false economy when a bug pops up after a launch.

In conclusion, without rigorous testing based on real occurring events, you risk falling behind your competitors. And often, if you work in QA, that responsibility can fall to you.

So what's the answer?

There's no one-size fits all solution

The solution to this complex challenge lies in finding the right balance of emulator and device-based testing for you. And that balance needs to be as unrestricted by budget, scalability and time as possible.

Cambrionix's enterprise managed USB hubs rethink how users are able to run tests. By removing the roadblocks of traditional USB hubs, they free you up to gain deeper insight, more accurately, with more reliability, and faster than before.

MRP Mobility estimates, for instance, that it has increased operational capacity by as much as 500 percent through the use of proprietary software, Cambrionix hardware, and a suite of purpose-built tools.

So what to consider when choosing your managed USB hubs

First, you need to define exactly what it is you want your USB hub to do. Think:

- **Does it just need to charge devices?**
- **Do you need to monitor, control the device?**
- **Do you also need to sync (transfer data) to and from that device, perhaps to erase or load new content onto it?**
- **Does this need to be as quick as possible, or is speed not a concern?**
- **Do you need safe, reliable charging 24/7**

Let's start with device management

Do you need to manage your devices from one central location?

USB charging with a charge and sync device allows you to manage all plugged in devices over a network, performing security or OS updates from a central location.

This means you don't need to physically move each device to update it.

When you've got 5 devices this may not be an issue. But when you can run 96 devices from one host computer, you save an awful lot of time in the process.

Locally monitoring and control

Trying to work out how many devices you need to test can be complex.

You should choose devices that your target market or customers use, making sure you test on at least 25 - 30 different devices.

Aiming for around 80% of all use cases is a sensible target. The remaining test cases can be performed manually.

Building your own test lab means you are in control of the devices and can help your testing protocols.

Consider these benefits of using USB hubs in your lab:

- **Easy deployment of devices**
- **Automate test processes**
- **Easily create an internal test lab**
- **Shorten processing times**
- **Synchronise front and backend deployment**
- **Ideal for development and testing environments (automated and manual). Wide range of Devices Under Test means using managed USB hubs improves this speed.**

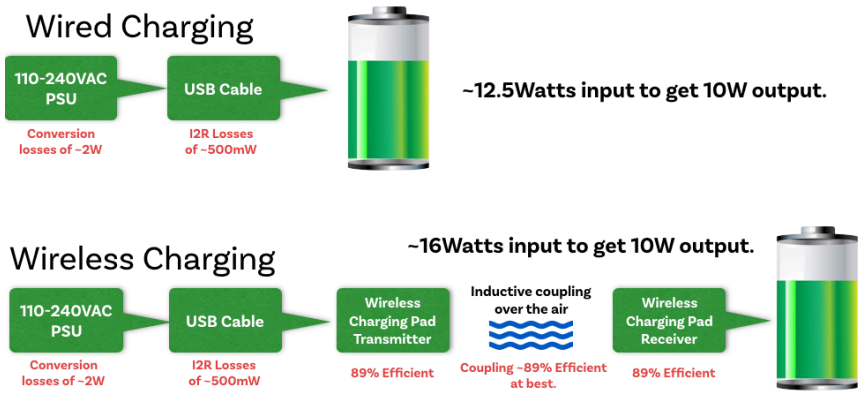
Remote monitoring and control

Connecting to remotely distributed devices—while keeping them charged—is vital for industries such as hospitality, retail and law enforcement.

USB hubs that don't require a local computer are great for space saving. They're small, silent and ideal for under desks and counters, etc.

Tens or even hundreds of Cambrionix EtherSyncs can be daisy-chained together to charge, sync and monitor large numbers of devices remotely, over a Ethernet LAN.

What about wireless charging?



The difference between wired and wireless charging in the example above is around 3.5Watts. This may not sound like much until you consider that wireless charging requires more material to make, generates more heat and is generally more bulky meaning that shipping uses more fuel per unit.

If all of the world's cellphone owners switched to wireless charging (7 Billion phones) then the additional demand on electrical power generation would be in the region of 24.5 Giga Watts.

That's the same amount of power as:

- **6,125 Chernobyl nuclear power stations (~4MW each) could produce.**
- **Over 5 fully operational (6 reactors each) Fukushima power stations could produce.**
- **A land-mass of photovoltaic panels covering 163sq km, the equivalent of the area of San Francisco and surrounding areas, could produce.**

Let's talk about power

Most managed USB hubs don't take into account that different devices charge in different ways.

Too many volts will likely destroy a product. Too few, and it won't work. Matching the voltage between your charger and your device is therefore critical to your QA testing.

Likewise with amps. If a power supply or charger provides less current that the device requires, it will prevent charging or slow it down.

This goes against manufacturer guidelines, erodes the long-term health of the battery—and charging will not happen as fast as it could.

Let's say you're trying to charge an iPad with an iPhone charger. An iPhone charger can only supply the iPad with 1Amp.

This becomes a problem if, for example, your iPads are placed on charge at 5 pm and not charged by 8 am ready for the next day's shift.

In a lab environment, this can drastically impact your work, in some cases requiring extra staff to manage constant USB connectivity issues.

During testing the screen may be ON and the processor, wireless, audio etc may be working hard. Without the correct charger your test device battery may actually go down during testing.

Benefits of Cambrionix industrial managed USB hubs

Just as much power as you need

Cambrionix managed hubs auto-detect attached devices and automatically adjust the current output to the highest level permitted by the device manufacturer and USB specifications.

This means they self-adjust their output to the perfect level for each charging device individually and simultaneously.

If the charging device supports the USB Battery Charging V1.2 and charging downstream port (CDP), high current charging during syncing is supported.

Intelligent charging algorithms update to support new devices and charging protocols, ensuring your hub keeps up with market changes.

Say goodbye to endpoint limitation

Do you find devices on your USB port sometimes appear and disappear intermittently?

If you connect too many devices to most computers' USB ports you may be hitting the endpoint limit.

Because this limit is dependent on the host computer's USB interface, the best way to avoid the endpoint limitation depends on the data transfer speeds you require.

Products such as Cambrionix ThunderSync using Thunderbolt™ technology help you navigate this complex environment with ease.

[Read more]

Easily scale to meet your needs

If you want to synchronise more devices, multiple Cambrionix products can be connected together (either in a star topology or daisy-chain).

This allows you to manage a large number of devices (the exact number is dependent on the product) from a single host computer simultaneously.

Sync up to **96** DEVICES

Read more

Industrial managed USB hubs save you money

Using one managed USB hub for 15 devices means you only need one mains socket in your building, rather than trying to find 15. It also means fewer costs, for instance on maintenance, installation, and PAT testing.

USB charging via a hub can save you time and can eliminate the potential hazards of wall charging.

Keep you Health and Safety compliant

With rigorous health and safety legislation, plus all those other certifications to keep up with, it's important your devices meet the necessary safety standards.

With some devices over 300w, that's a lot of power. Heat needs to be dispersed safely and correctly, according to the relevant health and safety standards for the device.

Safe, reliable charging

Cambrionix managed USB hubs are built for safe and reliable charging every day, all day.

With auto-shutoff, over voltage, short circuit protection, over currrent, over temperature, all products meet the stringent safety standards of all relevant governing bodies.

Test data on certified USB hubs is available on request from the Underwriters Laboratory (UL).

CE c UL us LISTED I.T.E. E346549 FC RoHS Compliant

Read more

How Cambrionix managed USB hubs help Linaro achieve its goals: A case study

From the outset, when Linaro was set up in 2010, it struggled to find reliable USB hubs offering external control and the capability to withstand rigorous and demanding LAVA Lab testing requirements.

As the volume and complexity of work grew, problems around USB control and connectivity became increasingly costly and time-consuming.

Dave Pigott, head of Linaro's LAVA Lab, says,

"The main problem was reliability. We'd buy a range of hubs from basic cost to more expensive ones, but we found that eventually, all would start to develop faults. They wouldn't deliver full power on every port or a fault would cause a server problem, resulting in a server reboot.

Another problem was that if you wanted to charge a device and run some tests, the device would often drain power faster than it would charge. We also needed the ability to control each port individually and there was simply nothing on the market with that capability.

Using the Cambrionix USB technology means the lab can now run automated testing without having to manually monitor or stop and start operations. For example, USB ports can be switched automatically on and off or OS events triggered depending on the testing requirement.

Cambrionix is so far in advance of any other hub manufacturer I've ever seen, especially for our environment of industrial-class, automated testing."

Conclusion

No other industrial managed USB hub is purpose-built for mobile SQA.

With quick, convenient, reliable, real mobile device testing at scale, Cambrionix's unique purpose-built industrial USB hubs remove all the traditional challenges of testing on USB hubs.

Your in-house testing environment is more robust. You have more opportunity to test and research unrestricted by lack of budget or time. You're more confident about bugs and issues. And your app is more likely to succeed out in the real world.

Got questions?

Click here to learn more about Cambrionix for software professionals

or drop us an email at: enquiries@cambrionix.com

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