Technology Brief...

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Research, Analysis, Strategy, Insight

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Android Gets to Work

We're seeing a large uptick in use of Android mobile devices in many different business cases. Indeed, the industrial uses of Android powered devices are increasingly replacing both manual as well as formerly PC based systems. And while there is some concentration in particular verticals (e.g., retail, transportation, public sector), we expect a significant uptake in other verticals (e.g., healthcare, financial services, and general field force enablement) over the next 1-2 years.

Standard consumer grade devices are often not sufficient to meet the needs of a fully enabled field force, even though many workers are currently enabled through consumer-class smartphones and tablets. Our research shows that even at a premium price of 2-5 times the cost of a consumer grade device, purpose-built rugged devices can show a lifetime ROI of thousands of dollars in a typical use case scenario over consumer grade devices.

Why Consumer Devices may not be enough

A typical consumer grade device is meant to be replaced on a 1-2 year interval. Indeed the average smartphone upgrade takes place approximately every 18 months, although we see the need to upgrade more often when heavily used in business service. To be a true enterprise-class deployment, the average device must last 3-5 years in use. But the average consumer grade device used in many workplace environments, particularly with front line workers, need to be replaced every 6-12 months due to breakage and/or lack of performance (e.g., battery weakness not lasting a full shift, screen degradation). Over a 5 year lifecycle, that means procuring and deploying as many as 10 consumer grade devices for each ruggedized device (albeit they may need battery replacement after 1-2 years). That represents a significant cost of device purchase as well as user downtime to transition to the new device, and often requires IT support services as well, potentially resulting in overhead cost of $400 - $500 in addition to the device cost each time it needs to be replaced. Over 3-5 years, that adds $2400- $5000 lifecycle cost to use of a consumer grade device.

There are a number of devices now in market that can fulfill the needs of enterprise-class use. The primary requirements are that these devices include ruggedized features (e.g., drop resistant cases, waterproofing, shielded screens for minimal breakage, extra bright screens for outdoor use, etc.), include a replaceable battery – both for the ability to use the device continually, as well as the fact that one of the major reasons device need replacing is a weak battery and the majority of consumer grade device do not allow battery replacement, and the ability to add peripherals (e.g., card reader, barcode scanner, etc.).

Recently several devices have come to market that are focused on providing enterprise-class capabilities beyond consumer grade. An example of a smartphone in this class is the Samsung Galaxy X Cover Pro. At an attractive price of $499, this device offers the features of a mid range Android smartphone, but with key field force features such as replaceable battery, ruggedized case, and a compelling push to talk feature that works on either the

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telephone network, or with Microsoft Teams group collaboration. This device, while slightly bulkier than a sleek top of the line smartphone, offers users the full Android experience so there is little learning curve, while also offering support for Samsung Knox security and management capability necessary for enterprise management. We believe this device to be an ideal selection for field workers like public sector, transportation, healthcare, manufacturing, retail, etc., who need a small form factor device while offering enhanced ruggedness at an attractive price.

An example of a recent addition to tablet class devices is the Panasonic Toughbook A3. This large form factor device (10.1 inch) fully ruggedized tablet is meant to be used in those environment where a large screen is required, but also where full ruggedization is a requirement. With connections over 4G or WiFi, the A3 is meant to be used within specific locations, (e.g., warehouse, retail store), but can also be used in the field. At approximately $2500, this device is likely 2 times or more what a consumer grade equivalent tablet would cost, but just as with the above discussion around smartphones, this is more than offset by the reduction in lifecycle costs. And the added benefits of onboard scanning, replaceable battery, Android Enterprise support, a third party peripheral marketplace and a concerted effort by Panasonic to recruit app developers make this a much better choice for many industries (e.g., transportation, retail, healthcare, utilities, energy, etc.).

Bottom Line: Enterprises are adopting Android based handheld devices in increasing numbers as more workers go mobile. Android offers an ecosystem that can provide the needed productivity enhancing apps. But organizations should look at the type of devices they deploy to make sure they are not being penny wise and pound foolish. Consumer grade devices for heavy use by field workers in industrial settings for full time business access often are far more expensive to run than equipping users with field-class devices. Further, the device cost is only a small part of the overall lifecycle cost. Companies must take into account a variety of factors when choosing the optimum device. Samsung and Panasonic have shown their ability to produce working-class devices that are both attractive and offer a better lifecycle cost for many organization. Enterprises must evaluate the overall lifecycle cost (we have a model to do so) before making a choice and should do so in the early stages of adoption, or face avoidable escalating lifecycle costs.

If You're Just Looking at the Smartphone Processor, You're Looking in the Wrong Place

"…In looking for the best mobile device, particularly as we move to fully enabled 5G networks, it's necessary to look beyond the core processor and even the modem. It's truly necessary to evaluate the capability of the full RF subsystem including the RFFE. Without a quality RFFE, where some vendors have compromised, you can't achieve the full performance and capability promised by 5G (or even 4G)…."

Most evaluations of smartphones (and indeed other mobile devices) start by looking at the processor running the device. Indeed, this is a very important spec as it determines the maximum capabilities of the device as well as the potential features, for example, screen resolution, camera capability, gaming characteristic, and network operation. And with the current move to 5G this last component might be one of the most important. But looking at the processor alone to determine the ability to run well on the latest 5G networks may not tell the whole story. Indeed, while there are now many 5G enabled mobile devices, they are not all equal when it comes to speed, latency and reliability of network connections.

The processor specs alone do not mean a phone will be fast. Even the modem, where many vendors are now focusing more effort, only goes so far in determining how well the device performs on the network. For optimum performance, what's required is an integrated performance capability that includes the full breadth of processor, modem, and critically the RF Front End (RFFE) – an area that many phones don't do very well.

Why it matters

If the RFFE is subpar, the ability to send and receive signals will be reduced, potentially substantially. This results in lower speed, increased latency, more dropped connections and ultimately user frustrations and carrier inefficiencies.

Using a suboptimum RFFE is like putting a bad drive train in a car with a supercharged engine. The RFFE, including the antenna, power amplifiers, filters, antenna tuner and other components, all must be optimized to transmit and receive efficiently. Lack of optimization, as takes place in many devices that simply "glue" various components together, does not make for a winning strategy, even if the processor chip itself is top notch.

As the leading supplier of mobile processors and modems, Qualcomm has committed to putting as much focus on the RFFE as it has in the processor and modem. In fact, for 5G this is even more critical as mmWave is a key component of the move towards 5G and is also a very hard thing to do well. 5G, and especially mmWave, is quite sensitive to the optimization of the complete radio transmission and reception subsystem, or it won't achieve the full capability inherent with 5G.

As an example, a recent test of phones on a network in the UK proved the point. The test found that the fastest 5G device was the OnePlus 7 Pro 5G, which is powered by the Qualcomm Snapdragon 5G Modem-RF System. It also found that the advantage was not limited only to 5G. 4G LTE devices powered by Snapdragon averaged download speeds that are 44 percent faster than devices with a competitor's modems.

Bottom Line: In looking for the best mobile device, particularly as we move to fully enabled 5G networks, it's necessary to look beyond the core processor and even the modem. It's truly necessary to evaluate the capability of the full RF subsystem including the RFFE. Without a quality RFFE, where some vendors have compromised, you can't achieve the full performance and capability promised by 5G (or even 4G). Users would do well to ask questions of vendors of what they are using in the full RF subsystem, and would also do well to ask reviewers for this information when listing product reviews. Without this, we can't really get the true picture of the device's capabilities.

Citrix and Microsoft Partnership: It's all about the new Workspace

"…We expect this partnership between Citrix and Microsoft will greatly accelerate the move to modern workspaces for users who need to engage with corporate apps from anywhere, anytime, and on any device. … Companies already using either Citrix or Microsoft products independently should evaluate how the pairing of these companies will enhance user productivity, impact cost of operations and ease the burden on IT resources..."

With the continuing focus on remote working and work from home brought on by the Covid 19 pandemic, companies are permanently restructuring their workplace to accommodate what is likely to be a long term change in how workspaces are utilized. The initial effort of trying to cope with the necessity of getting everyone up and running quickly and with little warning, has moved to one focused on how to make this sustainable and most productive for users while also maximizing resources and limiting continuous user support needs. As a result, organizations large and small have been reimaging what the user workspace is all about.

Citrix and Microsoft recently announced they are partnering to bring about a change in how the modern workspace is deployed and managed, with both companies bringing their core strengths to the partnership. Citrix will concentrate on its efforts to modernize and enhance the user workspace with its Citrix Workspace, Citrix SD-WAN connectivity options, analytics tools, and other related products, while Microsoft makes sure all of this is well integrated with its core Office 365 and other collaboration products (e.g., Teams). All of this will be running on Microsoft's Azure cloud services as the preferred vendor. Not only will Citrix and Microsoft cooperate on jointly selling the solution, but they will also push the products through their respective sales channels, including system integrators and value added resellers. This greatly expands the potential deployments to a wide array or organizations of all sizes.

This is a win-win situation for Citrix and Microsoft, but also for their respective customers. The pandemic forced many companies to adopt a virtual desktop strategy as a way to get potentially thousands of users up quickly at the start of the pandemic. Rapidly moving workloads to a cloud environment is a scalability challenge (e.g., moving 5K users to a virtual desktop in a matter of days) that many struggled with. In the past at least part of this provisioning was required at the HW level and caused many problems and delays. Moving everything into the cloud on an ad hoc basis without having a preconfigured, verified capability was a chore. With this partnership, Citrix and its customers get dedicated Azure resources working with Citrix to solve that challenge, providing familiar tools for scalability, provisioning, security and service capability, and supported by Microsoft infrastructure.

For its part, Microsoft obtains a partner that adds value on top of its dominant position providing productivity tools with Office 365, and increasingly through its Teams collaboration suite. In the future we expect this partnership to potentially embrace further Microsoft cloud based systems (e.g., Dynamics). Microsoft users have not always found it easy to provision a user workspace without significant effort. With its capabilities in integrating a wide variety of user apps into its Citrix Workspace with automated tools and processes, and especially including non-Microsoft apps that many organizations run as part of their business requirements, Citrix creates a much easier environment for Microsoft to sell its cloud based services, and even migrate non-Microsoft cloud based apps to Azure.

To be sure, there are customers that will need specialized services to fully integrate all of their capability even with both Citrix and Microsoft closely collaborating. We expect both to make services a key component of this partnership. But compared to current efforts necessitating working across company boundaries, the amount of work to implement a solution should be much less. And the ability to connect competing products and even products running on competing cloud environments (e.g., AWS) will allow this partnership to carve out a significant position in the market.

Bottom Line: We expect this partnership between Citrix and Microsoft will greatly accelerate the move to modern workspaces for users who need to engage with corporate apps from anywhere, anytime, and on any device. While this will be attractive to enterprises, we also expect this to be an attractive solution for SMB, since pre-verified solutions will make it significantly easier to deploy, and provide an easy to choose and adopt solution. This is a win for all parties concerned – Citrix, Microsoft and the end user organization. Companies already using either Citrix or Microsoft products independently should evaluate how the pairing of these companies will enhance user productivity, impact cost of operations and ease the burden on IT resources.

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About J.Gold Associates, LLC.

J.Gold Associates provides advisory services, syndicated research, strategic consulting and in-context analysis to help its clients make important technology choices and to enable improved product deployment decisions and go to market strategies. We work with our clients to produce successful new product strategies and deployments through workshops and reviews, business and strategic plan coaching and reviews, assistance in product selection and vendor evaluations, needs analysis, competitive analysis, and ongoing expertise transfer.

J.Gold Associates provides its clients with insightful, meaningful and actionable analysis of trends in the computer and technology industries. We have acquired a broad based knowledge of the technology landscape and business deployment requirements, and bring that expertise to bear in our work. We cover the needs of business users in enterprise and SMB markets, plus focus on emerging consumer technologies that will quickly be re-purposed to business use.

We can provide your company with a trusted and expert resource to maximize your investments and minimize your risk. Please contact us to see how we can help you.