



Technology Brief...

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Research, Analysis, Strategy, Insight

Why Intel's vPro isn't Just for Enterprise Anymore

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“...We believe that Intel has a superior security story to tell with its vPro products that it's just now starting to emphasize, ... Intel needs to do a better job of informing companies, both large enterprise and SMB, about the features available to keep company assets secure. We estimate that only 5%-10% of PCs ship with vPro chips currently, but we expect Intel's renewed emphasis on messaging the benefits, and the significant security enhancements available, will double that share in the next 3-4 years...”

While Intel made a major splash at CES with their new 12th Gen mobile and desktop chips including major improvements in processing power and reduced power requirements, overlooked by many in these announcements is one of Intel's key strengths – its commercial grade vPro technology. To better promote vPro, Intel is pivoting its messaging to a more security focus with less on management, and will implement new branding that brings vPro branding forward and not just be a small sub-brand on the badge.

vPro has been around for many years, and has been seen by most as an enterprise premium brand that is associated with remote management, system updates and peripherally security. It was primarily implemented by large companies wanting to update and manage machines remotely, often through LAN/WAN connections, and tied to IT operations with device management suites. But the latest vPro chip implementations and associated software products are different. The focus is clearly on security and specifically the additional security features built into vPro chips compared with standard Core processors. Newly announced features reserved for vPro devices include:

- Intel vPro® for Intel® Evo™ with all the enterprise features plus responsiveness and mobile experiences
- Intel vPro Essentials targeted at small business where IT is lean or non-existent, with premium connectivity support, built-in security features, and partner-ready manageability enabled for service providers
- Intel vPro® Enterprise for Chrome offering “Built for Business PCs” on select Chromebook devices running on Intel CPUs

Hindering vPro expansion in the past has been the lack of robust OEM support. It's often been a challenge to buy vPro enabled devices. The major PC makers like Dell, HP and Lenovo don't aggressively push vPro. Sales have been primarily the result of specific enterprise pull. A long term challenge that Intel continues to face is that vPro price uplifts on various devices are determined by the OEM device makers (e.g., Dell, HP, Lenovo), and in many instances the additional cost of devices is overly high. As a result, the uplift in price has not always been attractive to purchasers, preventing organizations focused on price from moving to vPro. Further, many companies that have purchased vPro enabled devices in the past never fully implemented the technology.

We expect the new focus by Intel on simplifying the vPro message and increasing marketing will have a big impact on its deployment. While there is still much work

to do to get the message out and make it a more mainstream purchase choice, the need for organizations to increasingly focus on enhanced security makes this a prime time to push home this message. Intel does have an advantage in vPro-class security, even while other x86 vendors like AMD seek to compete with their own capability. AMD has a similar approach to “pro class” processing, but its recently released Ryzen PRO capabilities are more a “vPro Lite” version compared to what Intel offers. Still, for those enterprises purchasing AMD powered PCs, a similar argument can be made that the modest additional cost is well worth it. And ARM-based vendors, particularly Qualcomm, have been enhancing their security features for some time. They are a more credible competitor to vPro than is AMD in the short term, particularly with the push to promote Windows on ARM PC devices and especially in Chromebooks.

Bottom line: We believe that Intel has a superior security story to tell with its vPro products that it’s just now starting to emphasize, after languishing as a minor market share of the global PC industry for years due to it being focused only on large enterprise sales through OEMs. Intel needs to do a better job of informing companies, both large enterprise and SMB, about the features available to keep company assets secure. We estimate that only 5%-10% of PCs ship with vPro chips currently, but we expect Intel’s renewed emphasis on messaging the benefits, and the significant security enhancements available, will double that share in the next 3-4 years. However, we caution that Intel alone can only do so much, and each of the primary PC vendors must make it easier to obtain a vPro device. Still, we believe that most organizations, and especially SMB now that Intel has made an SMB version available, should be purchasing vPro enabled devices for their improved security and ability to maintain the latest updates to their hardware and software systems. The small additional cost of vPro is trivial compare to the potential cost of a malware or ransomware attack.

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Samsung Networks’ Push for Market Share in 5G

There has been a major push over the past 2 years to see who can lead in equipping 5G infrastructure. While the traditional players like Ericsson, Nokia, Huawei, and ZTE among others vied for the title of leading supplier, the overall market has changed significantly in the past couple of years. With pressure on many countries to ban Chinese suppliers like Huawei (and ZTE) from their 5G networks, and even move to be replaced in older 4G networks, there has emerged an opening for a major but not always well recognized infrastructure supplier to have significant impact.

Samsung Networks has been building cellular networks for years, although most early deployments have been Korea-centric. But with 5G and the greater move to virtualization of network infrastructure (VRAN and ORAN), that has changed. Samsung Networks is still the leading provider of 5G infrastructure in Korea, but has been increasing its presence with installations in Japan and the US. Indeed, Samsung claims to have more VRAN installations – the heart of any modern network – than anyone else. And it also provides equipment to support mmWave and Massive MIMO – both key ingredients of the future of cellular communications.

Its partnerships include supplying hardware to JIO in India, and it has worked with Verizon and AT&T in the US, Vodafone and Orange in Europe, KDDI in Japan, and others. And while its major opportunities are in 5G Greenfield installations, there is a significant virtualization of existing 4G networks going on as well that Samsung Networks can enable with its technology. With an ability to provide proven high speed devices for newer C-Band deployments, coupled with mmWave Massive

MIMO and AWS and PCS spectrum components, Samsung Networks covers nearly all cellular infrastructure requirements. And with recent tests showing 8Gbps of downlink on 100MHz C Band and uplink of 700Mbps on mmWave at 28GHz, network performance is impressive.

Samsung Networks has traditionally focused on the large carrier market, working to supply major infrastructure build out. But we believe that one of the key strengths Samsung Networks brings to the table is its ability to work on private 5G network opportunities, which we expect will take off over the next 1-2 years. This includes the ability to power CBRS unlicensed networks, which are expected to grow substantially over the next few years as organizations including manufacturing, retailers, hospitality and sports/convention venues all look at upgrading from WiFi only connections. That's not to say WiFi is dead. WiFi 6 and WiFi 6E are also major growth opportunities, to which Samsung Networks also provides products. Further, we expect that Fixed Wireless Access (FWA) will be a major focus for carriers with bandwidth available on 5G, and Samsung Networks will be a major player in providing both networks and consumer premise equipment.

But CBRS is not the only private 5G networking opportunity. In fact, we don't expect it to be the major implementation strategy for most large enterprises. Many private 5G networks will be deployed using licensed spectrum and furnished (and managed) by traditional carriers for new and upgraded installations. There are still 4G private networks in use and new ones being deployed, so this segment can't be overlooked as an opportunity. With Samsung's close partnership with most of the leading network operators, and a focus on simplification of deployment, this represents a prime opportunity for them. And with an ability to provide a wide range of equipment, including smaller base stations and mmWave equipment, this should be an attractive opportunity.

Bottom Line: While Samsung Networks has not always been first in mind when thinking of 5G infrastructure suppliers, we expect Samsung with its proven technology and wide-ranging product line to achieve a major market share for public networks, but increasingly for private networks as well. The challenge for Samsung Networks will be to focus on making more organizations deploying private networks aware of its place in the market and familiar with its performance and breadth of products. But with the Samsung name offering instant brand recognition, that should be easily overcome. However, creating the proper channels for getting product to market still needs more effort on Samsung's part.

Marvell Ups its Game – Pursuing New and Emerging Markets

Marvell has been a major provider of semiconductor computing components for many years. It is a leading supplier of chips that power storage, broadband communications and telecom among other areas. But Marvell has been a mostly embedded solution and therefore not always well recognized as powering many products and industry solutions. It now wants to accelerate its ability to be a major influence in emerging markets by creating new products and adding support and software enhancements that move it beyond its traditional component chip supplier status.

One area of immediate focus is the need for 5G Radio Access Network (RAN) products. These products are critical to network operators to implement 5G infrastructure that requires a virtualized environment for next gen networks (e.g., VRAN and ORAN). But they are also critical for new-age data centers and

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hyperscalers where workloads associated with data movement, traditionally handled by the CPU, are being offloaded to specialized Smart NIC (Network Interface Cards) subsystems, similar to acceleration for networking, encryption and security functions are handled in large data centers. This creates faster data flows but also enables more processing to be completed in the CPU, making each processing instance more capable as well as able to generate more operational revenue.

The rapidly accelerating need for SmartNICs is creating a major opportunity for Marvell (as well as others like Qualcomm and Intel, who also are creating products to address this market need). Marvell has a long history of networking enablement and by building a vRAN accelerator card on top of its traditional components, looks to become a leading supplier of higher level computing processing elements and not just chips. And because it has a long relationship with many computing system suppliers, it has a solid network to which it can sell its board-level products.

Leveraging OCTEON

Marvell is promoting its OCTEON Fusion product for baseband processing, and is focusing on OCTEON's capabilities to include running security workloads like encryption, key exchange, IPSec, etc. The card can provide vRAN processing capability and includes an ORAN baseband that will offer a step towards fully open RANs in the future. Marvell's goal is to eventually make cloud-native 5G vRAN processing as efficient as traditional hardware appliances when it comes to the network processing functions. But its capabilities already provide an ability to offload workloads from the heavily overworked CPU in many systems, making it a compelling option. Marvell claims that it already has design wins with 2 major OEMs and 3 cloud providers. While modest, this is a good start on Marvell's ambitions to be a major supplier to the industry.

Bottom Line: Marvell is leveraging its expertise in communications and a growing need for higher level networking systems to upscale its business from being primarily a chip level supplier to a board-level provider. While it's a huge opportunity, Marvell is not alone in targeting this market and related networking components and will face some stiff competition. Still, with Marvell's substantial connections and ecosystem of customers, it stands a good chance of turning this into a very successful business. But it will need to prove that it can provide truly system level products that go beyond just silicon chips in order to garner significant market share. We expect Marvell to establish itself in this space over the next 1-2 years as the market opportunity quickly expands with enough room for many players, and it's not just limited to the traditional board vendors.

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.



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