



Technology Trends...

January 15, 2017

J.Gold Associates, LLC., 6 Valentine Road, Northborough, MA 01532 USA

www.jgoldassociates.com +1-508-393-5294

Research, Analysis, Strategy, Insight

Emerging Enterprise Technology Trends for 2017...

A PUBLICATION FOR
CLIENTS OF J.GOLD
ASSOCIATES, LLC.

We present our trends for the next 2-4 years, covering the emerging technologies, products and strategies that will be critical to users and organizations.

Trend 1:

Mobile solutions have become a mature technology for many enterprises, yet organizations still struggle with managing and securing devices. Further, legacy management suites (e.g., BlackBerry/BES/Good, Citrix XenMobile, VMware/AirWatch) continue to predominate. In the next 2-3 years, we expect most enterprises to transition to a unified endpoint management (UEM) approach that is SaaS based, and includes not only current mobile devices, but PCs and EoT/IoT devices as well. This will enable a more secure environment at a lower cost while also increasing management capabilities and end user satisfaction. Although the current players are transitioning to this approach, not all will have equal capabilities.

Trend 2:

Creating applications, especially in a mobile and EoT focused world, will change over the next 3-4 years, as companies struggle to provide cross-platform support. The notion of building apps for a single platform (e.g., Windows, MacOS, iOS, Android) and taking 6-12 months to do so will become obsolete. Companies must focus on creating Rapid Application Deployment capabilities that expedite apps and enable rapid change as requirements arise. Development environments (e.g., IBM BlueMix, Microsoft Visual Studio and Universal Apps, Apple Swift) will emphasize cross platform support and design capability. Tools that provide conversion of legacy apps (e.g., Capriza, PowWow) will become important as many enterprise apps remain in use for 7-10 years. Finally, time to deployment will become the most important aspect of internal apps as any delays have a major impact on ROI and a negative opportunity cost.

Trend 3:

The Enterprise of Things (EoT) will accelerate over the next 3-4 years when enterprise "things" will outnumber standard IT devices by 5x-10x. As a result, enterprises will need to create a strategy based on a significant increase in network connectivity and traffic, substantially more authentication and identity requirements, increased security concerns, and a plethora of device types needing to be managed. Companies that don't plan effectively will become overwhelmed as current systems become inadequate to the task once the avalanche of devices achieves critical mass.

Trend 4:

Security in the enterprise will continue to be an uphill battle for the foreseeable future. With the increase of IoT/EoT and the preponderance of mobile device deployments, companies will struggle to keep data breaches in check, ransomware at bay, and devices from infection. Over the next 3-4 years, enterprises must shift focus and enhance infrastructure with cognitive and machine learning enabled security as the only way to effectively defend in a world of multiple form factors and varying intelligence devices. Current mainstream device security players (e.g., Intel/McAfee, Symantec) will have difficulty fully making the transition, and newer entrants with significant cognitive computing skills (e.g., IBM, Cisco, Cylance, RSA) will take the lead.

Trend 5:

The next phase of the “chip wars” is now taking shape and will continue for 3-4 years. Servers will continue to expand, dominated by Intel with a small share garnered by AMD and ARM-based chips. The traditional PC chips market will decline, although Intel will continue to dominate this space. The current mobile chip environment will morph into a battle for SoCs that power the IoT and EoT markets, with traditional ARM dominance, and lead by Qualcomm where its strengths in wireless give it an advantage. But we expect a continued pursuit of this market by Intel and it will make inroads particularly in higher end SoCs. AI/ML will emerge as a strong growth area, primarily powered by large arrays of parallel processing elements, giving Nvidia an advantage where it can leverage its GPU strengths, but will be challenged by Intel, Qualcomm and to a lesser extent AMD. The emergence of 5G by 2020/21 will give a boost to vendors with expertise in modems benefitting Qualcomm and Intel.

Trend 6:

Enterprises have a compelling need to empower workers, often beyond traditional office apps. Few companies have rethought the app-on-device paradigm based on traditional client/server models. In the next 2-3 years, we expect many enterprises to change to a more dynamic Workspace as a Service delivery mechanism that includes support for virtually any device type, near universal app access, enhanced and secured data sharing, and improved end user management. Current offerings (e.g., Citrix, VMware) are mostly extensions of VDI solutions, while newer generation (e.g., Google GSuite, Microsoft Office 365) concentrate on cloud enabled systems with localized secured “viewers”. Companies must explore deploying such solutions as a future-proofing strategy. They deliver the most flexible and cost effective solution for next gen organizations, by providing enhanced productivity, line of business flexibility, and a significant ROI.

Trend 7:

5G/wireless networks will emerge by 2020/21 and companies should plan for these next gen wide area wireless networks. Although we expect it to take 4-5 years before 5G has significant wide scale adoption, there will be pockets of device-enabled connectivity beforehand and companies will be pressured to enable 5G, often driven by user BYOD demands. Further in the next 1-2 years there will be early components of 5G making their way into widely available services from carriers (e.g., AT&T, Verizon), like LTE-NB. Companies should monitor and adopt the most advantageous components earlier, but should have a strategy that widely deploys 5G to users in 2020/21.

Trend 8:

Artificial Intelligence's (AI) emergence and dominance has been predicted for decades with minimal success. Over the next 3-4 years, we expect to see AI move from a curiosity in most companies to an important business tool. This will be driven by advances in both processors (e.g., Intel, Nvidia) and algorithm design and standardization (e.g., AlphaGo, DeepMind, TensorFlow, Nervana). However, we expect most AI systems to be Assisted Intelligence used to supplement and enhance employees rather than replace them. Companies must invest in machine learning (ML) but should realize that it will not always work correctly and they must be able to remediate systems for best effect.

Trend 9:

By 2020/21, most enterprises will see a flood of new end user devices and form factors that will vastly expand the current BYOD trend initiated by the availability of mobile devices. This will put increased demands on corporate networks, security practices and device management. Some older generation infrastructure will be able to be updated, but many companies will need to rethink and redeploy infrastructure components. This will require a suite of unified endpoint management products that can support not only current devices but many new devices as well. As standards may be sparse in the early days, flexibility to enable connection of all device types will be crucial.

Trend 10:

By 2020/21, most enterprises will have established some form of autonomous vehicles (e.g., drones, self-driving vehicles, robots, etc.) which will be tasked with assisting workers in their daily operations. Not all of the functions and capabilities that will become available are yet known, and there will be many more advances in the next 1-2 years that will enable better operations. Companies will have to add a functional group tasked with taking advantage of these devices. Organizations must begin planning now if they are to take full advantage of advances that significantly impact their revenues and profitability.

Trend 11:

Over the next 3-4 years, computer processors will continue to advance along the lines of Moore's Law, although at a slightly reduced pace. Beyond the traditional CPU/GPU wars of past years, a new competition for massively parallel processing elements necessary to power next generation AI/ML systems will emerge. The early lead goes to companies who can leverage their parallel GPU capability and scale up to hundreds and thousands of processing elements (e.g., Nvidia). Yet the ability to build large scale CPU elements (e.g., Intel) may dominate certain kinds of functions. All of this will be superseded in about 8-10 years by quantum computing which will fundamentally change the computing paradigm and will require massive investments to bring it to fruition.

Trend 12:

Companies that don't employ EoT in their business over the next 3-5 years will become extinct competitively speaking. EoT will become as important as past major computing waves, like mobile devices and the Web. Thinking that EoT is only a specialized form of M2M is wrong. And while virtually all companies will be affected, given its nascent nature, the full scope of EoT is not yet known.

Flexibility will be key and architecting for ongoing change will be a must. As in the mobile space which was largely driven by BYOD, so too will enterprises be driven by a wave of EoT devices coming into the organization. This has major implications for security, manageability, cost, connectivity, etc.

Trend 13:

Early smartphones (e.g., Blackberry) were primarily simple email devices. The latest generation are full blown computing engines with multiple apps and user interactions. EoT will undergo a similar transition over the next 3-5 years, ushering in fairly complex and often multi-purpose devices. Companies must begin planning for things that not only generate data, but that also have a user interface component, and in some cases may be AR/VR enhanced. Companies will need to address device manageability and user interface/user satisfaction issues through support (e.g., EoT Help Desk) and cloud based services.

Trend 14:

While the cloud will be critical to all EoT powered business operations by 2020/21, not all EoT devices will be connected directly to the cloud. The concept of edge computing will be a major component of EoT architectures going forward. Companies must continually assess where the “edge” should be to maximize device functionality, and to minimize latency, data transmission that could overwhelm the cloud, and cost. A multi-stage EoT architecture where various levels of edge computing takes place, from intelligent devices, to small servers stationed strategically close to EoT devices, to intermediate computing devices and finally in the cloud, will all be required. Few companies currently understand the complexity associated with EoT and an edge computing variable ecosystem. But they will need to learn and fairly quickly.

Trend 15:

Companies think of the ability to deploy low cost sensors and analyze the data as a potential windfall. Yet only about 10%-15% of data generated is currently analyzed, leaving 85% of potentially valuable data going to waste. In the next 3-4 years the amount of data generated will increase by 50-100%. Companies must commit resources to fully utilize that data to make smart business decisions by deploying Big Data, Analytics and AI/ML and cognitive services. This will be a true market differentiator for businesses and will require a specific strategy that includes understanding what data needs to be generated and how to get intelligence from it. Currently few enterprises do this well.

Trend 16:

Over the next 3-4 years we expect AR/VR enabled systems to empower workers in many capacities within the enterprise (e.g., field service, manufacturing supply/logistics). The current complexity and high cost in producing AR/VR content will be mitigated and the falling prices of headsets (\$300-\$500) will make enterprise adoption compelling. Companies must focus on defining and adapting processes that most benefit from such technology or risk becoming non-competitive.

For further insights, questions or comments, or to discuss any of our current trends, feel free to contact us.



J. Gold Associates, LLC.
6 Valentine Road
Northborough, MA 01532 USA

Phone:
1-508-393-5294

Web:
www.jgoldassociates.com

***Research, Analysis,
Strategy, Insight***

Contents Copyright 2017
J. Gold Associates, LLC.
All rights reserved