



# Technology Brief...

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J.Gold Associates LLC, 6 Valentine Road, Northborough, MA 01532, USA  
www.jgoldassociates.com +1-508-393-5294  
Research, Analysis, Strategy, Insight

## BlackBerry – Ford-ing ahead to future devices

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Since BlackBerry bought QNX in 2010, it has played a central role in powering BlackBerry devices. Indeed BlackBerry 10 was built on top of QNX, utilizing many of the key features that a Real Time Operating System (RTOS) provides. But with BlackBerry's diminished role in smartphones, and its abandonment of BB10 powering its devices (now powered by Android), BlackBerry is looking for other ways to leverage this key asset. QNX has been successful in its own right over the years in markets like medical equipment, aerospace, machine tools. BlackBerry is betting that it can power an increasing share of future company revenues. I expect QNX to become one of the bright spots of BlackBerry revenues going forward.

BlackBerry recently announced a significant partnership with Ford to power its SYNC 3 infotainment systems (having won the deal several years ago after Ford found Microsoft inadequate for its needs). I expect that this is just the first visible phase of a much deeper relationship that will play out over the next several years.

Let's examine several important points driving the relationship, and the market. First, cars are changing rapidly from individual embedded systems that run specific functions, to a broader platform that has subsystems interacting with each other. This is similar to what happened in the early days of the cell phone when the OS powered the basic operation of the phone and little else. As we move to smart cars (similar to the path to smart phones), the abilities of the OS to power multiple uses and features/functions, as well as the ability to extend to other apps will be critical.

Unlike many embedded systems developed for a specific function, it's becoming increasingly important that code be reusable. But it's also critical that it can effectively communicate/interact with other subsystems and indeed with outside systems. Critically important is that it must do so securely. QNX and its heritage excels in this space, providing secure communications, VPN capabilities, encryption (via Certicom elliptic curve) and very importantly, an ability to provide over the air updates in a secure and deterministic fashion.

The key to future smart cars is secure embedded intelligence. The notion of "dumb" systems running our cars, or for that matter anything going forward, is old time thinking. If you are not securing the interactions, data, connectivity or other actions, you are not creating a viable path to making the device and the data it produces or that runs it, safe for consumers and/or companies. Hacking of devices is a clear and present danger, and while some devices hacked will cause privacy issues, other hacks could cause much more problematic personal safety issues.

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BlackBerry used QNX as the core of its BB10 OS and learned much doing so. While BlackBerry ultimately lost the market for smartphones to Google Android and Apple iOS, BB10 was nevertheless a feature rich OS with many capabilities ahead of the competition. It's likely that BlackBerry (and ultimately its customers) can use this knowledge and code base to further enhance QNX functionality for devices, particularly as it relates to security, user interfaces, and code optimization. Further, it already runs on the ARM ecosystem chips that are likely to be most interesting to auto and other "things" makers.

While many focus on the Autonomous driving features necessary for future cars to be competitive, there is likely no limit to the other features that can eventually be added. This is analogous to what happened in the computer industry and especially in the smartphone (from features to general app capabilities).

There is no lack of potential competition. Apple and Google, as well as Microsoft, want to be the embedded engine driving all manner of "things". But in systems such as cars, where a "glitch" can cause not only an inconvenience but potentially a catastrophic occurrence, it's important to look beyond just a slimmed-down general purpose operating system. QNX has been designed from the ground up as an RTOS which gives it major advantages in mission critical systems.

**Bottom Line:** BlackBerry has learned much over the years about building a secured environment for computing and is well ahead of the market when it comes to this capability. Clearly others are working on this, but QNX is currently deployed in large volumes, with a long history of powering not just cars but many mission critical devices. We expect QNX to eventually take a majority share of the smart car market, but also smart commercial vehicles (e.g., trucks, buses, etc.). QNX is already powering 60M cars. While Ford may be the most visible cooperative arrangement to date, its likely BlackBerry will be making several other key announcements in the near future built on many already existing partnerships.

## Will there be any pure wireless carriers left?

There's been a lot in the press lately about carriers becoming entertainment companies to supplement the pure connectivity subscriptions that they sell. The challenge facing all carriers is just how many more phones will people buy in a maturing/saturating market? And while its future potential is large in sheer volume of devices, consumer IoT doesn't have the same revenues or margins as a relatively pricey smartphone plan. So carriers are searching for other opportunities.

The already forming combined entertainment aspects to boost carrier "stickiness" (e.g. AT&T/DirectTV and probably Time/Warner, Verizon/AOL and soon Yahoo) are important. But there is an equally important change taking place that is less recognized but has even more potential to fundamentally shift the carrier business. The notion of what a carrier is and can provide customers is changing dramatically.

Historically carriers were concentrated on deploying hardware in the form of towers and cellular base stations, with dedicated infrastructure and huge data centers operating behind the scenes to make it all work. But that's becoming ancient history. Carriers now are mostly software companies, defining and deploying new services with SDN, unlike the past when large hardware investments would have been required for each service offering.

This fundamental change in business model started for most carriers about 3 years ago and will be fully rolled out over the next 3-4 years. This strategy is critical to

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making new technologies like 5G, NB-LTE and the specialized wireless services being rolled out over the next 3 years, work. But updating the architecture also ushers in a whole new opportunity and way of doing business that the carriers, now driven by services that can be added at will as market demands emerge, can monetize and turn into a growth engine. And many are already well down that path.

*As a case in point, let's briefly examine AT&T:* As critical as connectivity is, most organizations (and individuals) deem security as mission-critical. AT&T is tapping into this need by providing a broad level of security services. Indeed, AT&T is the second largest managed security services provider (by revenues). AT&T sees tremendous amounts of traffic, with 118.8 petabytes of data flowing through its network every day. This gives it insight into threat vectors & spam origination. As a result it can leverage Machine Learning to detect and proactively prevent many attacks and offer protective services not available internally to many companies. These are services AT&T can provide relatively easily layered on its SDN and NFV capabilities. It would have had difficulty doing this in the "old days".

According to AT&T, malware incidents affected 87% of enterprises last year and DDOS affected 70%. It's a \$1B business. Security requires protection of both the device and the network. While businesses are willing to pay for such services offering AT&T a significant revenue opportunity, most consumers are not. Yet establishing such network capability could give AT&T a competitive advantage by leveraging the business security assets it has in place at a highly reduced rate (or free) for consumers. This is a potential competitive advantage.

*Reaching out to new markets:* In years past it would have been nearly impossible for carriers to go "cross-border" to offer services outside of its base hardware infrastructure locations. Now they can offer virtual Internet services to almost any location through SDN and NFV capabilities. These network virtualization services are popular with organizations that want to focus on their businesses and not have to deal with keeping their networks running, freeing up valuable resources to apply to other areas. AT&T is leveraging this trend to offer services to multi-nationals and to geographies where it never could have competed in the past.

Of course these trends are not defined solely by the carriers. The big infrastructure providers (e.g., Cisco, Ericsson) have spent considerable resources providing SDN and NFV infrastructure products to the carriers, and will comprise an increasing share of their marketing efforts and revenues going forward.

**Bottom Line:** Carriers are morphing from large hardware infrastructure players into cloud-based providers of a variety of services they never could have done with the old hardware-centric models. This bodes well for the carriers as some of their legacy operations face stagnation. But it's also an indication that carriers must change to compete, and the larger players (e.g., AT&T, Verizon) have a distinct advantage, particularly in offering more lucrative business functions and services.

## If IoT devices reach 50B by 2020, what does that mean for carrier revenues?

Many have pointed to the growing use of IoT devices and there need for connectivity as a way for carriers to reap the next "goldmine" in subscription fees. Indeed, there will be a huge number of devices in the next 3-5 years that will require connectivity, and many will be connected over traditional wireless carrier networks. But will this represent a large revenue stream for carriers?

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- Replacing Enterprise PCs: The Fallacy of the 3-4 Year Upgrade Cycle
- Keeping Notebooks Past Their Prime: A Study of Failures and Costs

### Whitepapers

- A Heuristic Approach to Mobile Security
- MDM- Where Do We Go From Here?



### J. Gold Associates, LLC

6 Valentine Road  
Northborough, MA 01532 USA

#### Phone:

+1-508-393-5294

#### Web:

[www.jgoldassociates.com](http://www.jgoldassociates.com)

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We segment devices into “nice to have” convenience devices which consumers will deploy in great numbers, “mission critical” consumer devices, like healthcare or smart home related devices which will be more limited, and “enterprise-class” devices used in smart cities, healthcare, autonomous vehicles, etc. There will, of course, be many relatively small sub segments to all of these, but having the three “baskets” will make it easier to assess the market potential.

Of the 50B forecasted devices, we expect the segments to split in the following ways. We expect the consumer convenience devices to be approximately 60% of the total (30B), the consumer mission critical to be approximately 30% of the total (15B), and the enterprise-class segment to be about 10% of the total (5B). Looking at the market in this way allows us to better assess what it will mean in wireless revenue potential.

Not all of the segments have the same potential to generate revenues. Our analysis is that the total expected worldwide contribution of IoT to carrier revenues in 2020 will add an additional 70% - 105% based on current revenue levels. According to CTIA, annual worldwide wireless revenue as of Dec 2015 was \$191B. So a 70%-105% growth in revenues over the next 3-5 years is quite significant. However by that time the base (\$191B) will have grown as well, so the IoT revenue will be a smaller overall gain than stated above. This is still a large opportunity for additional revenues available to the wireless carriers.

**Bottom Line:** While the Internet of Things and all of the connected devices it will bring to market have been predicted to be a huge connectivity opportunity, there needs to be some understanding of what types of devices and how many of those will actually need wireless wide area networking. That and the price subscribers are willing to pay will ultimately determine the potential revenues for wireless carriers.

## 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.*