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BIG DATA STORAGE

5G: Big Data Goes Mobile



Robert Plant, Associate Professor, School of Business Administration, University of Miami
5/29/2013
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Recently, Samsung announced that it had developed a new 5G mobile adaptive array transceiver-based system. Its engineers state that it works in the millimeter-wave Ka band (28 MHz) and is capable of supporting data transmit/receive at speeds of 1.056 Gbit/s over a range of 2 km.

Currently, 3G systems, which support a minimum of 0.2 Mbit/s, are being superseded in the USA by 4G LTE services, which provide peak downlink rates of 400 Mbit/s and uplink of 75 Mbit/s. The Samsung announcement indicates 2020 as a target date for the commercialization of the technology.

Heavy EU and China investment

The announcement also indicates that both the EU and China are about to invest heavily in the fight for influence and leadership in forming the basis of the 5G technologies. The EU has established plans to invest 50 million Euros in 2013, while China in February 2012 established a government-led "IMT-2020 (5G) Promotions Group."

True mobile 5G would be pivotal in the transformation of the big data landscape. Defined through the three Vs of volume, variety, and velocity, big data's volume bottleneck would be opened up, as high data volumes are essentially a product of velocity and increase the velocity, and more data could be delivered or sourced for subsequent analysis. This would be favorable in four ways:

First: reduced latency. 5G would allow mobile processing to occur closer to the data. For example, traders on the floor of a stock exchange can be fed real-time data, which could be processed locally on mobile devices. This data may come from other traders, and in combination with high data volumes from external research entities and BI databases also delivered through 5G WiFi channels. This low latency data channel would amplify the analytical prosthetic for that trader, giving it a potential information advantage.

Second: increased integration. The ability to connect the mobile platform to every entity in the organization will bring greater efficiencies from the operational workforce. These efficiencies will be achieved by a greater detailed analysis of processes in the supply chain in relation to data from vendors; for example, the movement of warehouse operatives and delivery channel logistics will enable the refinement of shared processes by both parties. In this way, mobile data streams will allow increasing amounts of process visibility for managers and business leaders; in turn, analysis around these processes can take place, and real-time adjustments can be made. This deeper visibility and connectivity will enable business process refinement at an even greater level of detail, with the potential for information sharing and process optimization by all members of the operational group, both internal and external to the firm.

Third: mobile intelligence. 5G would enable higher bandwidth data to be provided to systems that require large data volumes to be able to function at maximum effect. For example, remote control airborne drones could provide their operators with higher degrees of data while performing refined scanning and localized processing. This technology could be used by law enforcement to improve road traffic visibility and analysis and help farmers deploy geographic information systems. Consumer smartphones could sync in parallel and in real time to databases from multiple app providers for analytics. Gone will be the days of sequential app use, which limits our productivity and connectivity.

Fourth: visualization. Big data is increasingly delivered to maximum effect through visual means. The advent of 5G will enable developers to create increasingly sophisticated big data applications that can delivered to these mobile platforms, with the analytics presented through rich visual interactive interfaces that utilize dashboards and customizable reporting tools. This has the potential to both make their recipients more effective in deploying the knowledge in their tasks and increase the mobile systems GUIs for data input and delivery back to the host, through embedded systems, cameras, gesture supported systems, multi-touch interfaces, and sensors.

The convergence of big data and mobile will change the nature of society, both in terms of business and personal computing. We will no longer be tethered by the cable; work will not be defined by the office. Our personal lives and relationships with vendors will also change dramatically as they move to big data and mobile platforms. While Samsung's 5G strategy offered us a glimpse of the future, that future is not yet fixed. Now is the time for companies and individuals to think about how they can best leverage that change and position themselves to take advantage of this new paradigm.

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kiran, User Rank: Petabyte Pathfinder
6/20/2013 | 6:32:52 AM

Re: Give me all ya got Scotty...

@James - Samsung has already succeeded in ousting Apple from the smartphone throne with the Galaxy series of smartphones. I guess after Jobs' departure, Samsung wouldn't face much hurdles in becoming the leading innovator.

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Ariella, User Rank: Blogger
6/13/2013 | 8:24:50 AM

Re: Give me all ya got Scotty...

@a.saji yes, I know. Asia is a very large market, though Africa shows rapid growth in that area.

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a.saji, User Rank: Megabyte Messenger
6/13/2013 | 6:19:54 AM

Re: Give me all ya got Scotty...

@Ariella: I was referring to Asia. Sri Lanka falls into that region.

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Saul Sherry, User Rank: Blogger
6/4/2013 | 11:00:59 AM

Re: Give me all ya got Scotty...

I guess once we start looking at 6G and beyond we might as well be getting rid of wired connections into homes and offices (providing the networks are good enough to not need backups). The benefits in collecting data in this scenario is clear - a single device consuming the data means more accurate analysis of who people are (as opposed to their consumption being split between mobile and wired devices).

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Pubudu, User Rank: Exabyte Executive
5/31/2013 | 1:42:08 PM

Re: Give me all ya got Scotty...

True netcrawl, in these days new age market most of the smart phones are support to dual sim. Most of the users will use this feature for to have extra sim for the data which mean more data thought mobile.

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Ariella, User Rank: Blogger
5/31/2013 | 11:01:12 AM

Re: Give me all ya got Scotty...

Africa is also very big on mobile. I've seen a number of articles on that, including this one: <http://www.guardian.co.uk/technology/2013/may/28/google-africa-blimps-net-access>

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a.saji, User Rank: Megabyte Messenger
5/31/2013 | 10:12:43 AM

Re: Give me all ya got Scotty...

@netcrawl: I think in India and Sri Lanka the market is much more huge than any other country or region.

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netcrawl, User Rank: Petabyte Pathfinder
5/30/2013 | 10:22:57 PM

Re: Give me all ya got Scotty...

So Alibaba is now on mobile business, I'm not sure about this company because they're an online company, they sell goods. I think they have no technical acumen and resources to compete with Android in the highly lucrative China market. Google's strength lies on its strong partnerships with the developers, and also big carriers and manufacturers. Alibaba has no experience in mobile platform or hardware, simply put it can't beat Android.

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netcrawl, User Rank: Petabyte Pathfinder
5/30/2013 | 9:58:22 PM

Re: Give me all ya got Scotty...

It seem that Mainland China has getting more attention these days, with its huge market opportunities China has become the next battleground for telco companies. I think Google's Android still on top of the mobile market by a wide margin, its popularity and strong mobile partnerships make it a powerful force in China.

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Robert Plant, User Rank: Blogger
5/30/2013 | 8:20:46 PM

Re: Give me all ya got Scotty...

Yes, seems Alibaba is already there. AMOS (Alibaba Mobile OS) is in conflict with Google as they think it is a variant of Android. This is going to be quite a contest. Apple is 6th most popular handset in China, so Samsung is positioning well in advance of the battle to align with both sides (AMOS and Android) would be my guess.

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