Technology Brief...

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Research, Analysis, Strategy, Insight

Blockchain: It's not just for finance anymore

You've probably heard about Bitcoin, the virtual crypto-currency that has often been associated with illegal activities and the "dark web". Indeed, it's been a favorite way for drug dealers, for various criminals, and for hackers who take over machines and then demand "ransomware" to get paid. Since Bitcoin transactions are secure and essentially untraceable, it makes life much easier for undercover transactions. Of course, there are many legitimate uses for Bitcoin as well, and many mainstream institutions have begun accepting it as payment.

Bitcoin and similar types of crypto-currencies are based on a technology called Blockchain (although there are some competitors, Blockchain is currently leading the field in vendor support and R&D). Blockchain in its simplest form provides a mechanism so that each step in the process chain has the ability to add data to a protected ledger and to determine that the data has not been changed or altered in any way. This creates a fully audited trail of any and all activities for a specific data set related to an activity or process. In this way, Blockchain provides for an unalterable history of all transactions and verifiable data base of activities for use by any applications needing access to the ledger. Clearly this is important in any high value transaction that must be prevented from being forged and/or hijacked. Which is why Blockchain is so attractive as a financial vehicle.

Use of Blockchain in financial systems continues to expand and will be an increasingly important technology going forward. But Blockchain capability may actually be as or more important to enabling a growing number of high value IoT functions that must also be effectively protected. In the important field of the Enterprise of Things (EoT), having proof of unaltered data is often mission critical and can make the difference in a life or death situation, in hazardous response requirements, or in many other high value interactions/operations.

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For example, imagine health related data from some monitors that could control life or death situations, being sent to a cloud for processing. How do you know that data is legitimate and unaltered? Or perhaps a company is shipping very expensive drugs that must be maintained at a particular environmental level to remain effective. How do you verify the monitoring data is valid when high priced product sales are at stake? Or you may be monitoring data from a power plant or other large public facility. How do you verify the data has not been altered to mask some form of tampering that could cause the plant to fail, or worse? Or data sent from an operating automobile or truck? Or airplane? There are a large number of such potential uses for EoT generated data that are of extremely high value and any attempts at altering or "spoofing" such data could have potentially monumental

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consequences. Which is why data protection and verification is of such high importance to many critical EoT solutions (and often overlooked and/or neglected).

Many companies are investing in Blockchain technology as part of their infrastructure capabilities. For example, IBM as part of BlueMix has been promoting use of Blockchain in its software targeted at financial institutions. But it may be equally as important to IBM in enabling Watson and its cognitive services for many industries required to fully verify all data before it is analyzed and acted upon. And certainly IBM is not alone. Microsoft Azure has made available a Blockchain as a service environment as has Amazon (AWS). System integrators like PwC and Deloitte provide Blockchain services. And the list is growing. In the next 1-2 years, we expect nearly all the major infrastructure vendors to offer services based on Blockchain or a similar audited ledger technology.

So what does all this mean to the emerging field of EoT? As more and more organizations finds ways to exploit the benefits of an EoT environment, they will be faced with a real security dilemma that requires a way to fully audit and verify that the data generated by the "things" and acted upon by analytics and automated workflow systems has not been compromised in any way. This is not only a nice to have, it's potentially a requirement to prevent catastrophic circumstances. While not the only way companies will have to deal with security in an EoT environment, Blockchain and similar technologies offer an important step forward in making EoT safe from hacking and/or hijacking. We expect many vendors to start addressing such needs with targeted offerings. Companies serious about EoT need to fully examine the benefits of such a technology as a key component of their strategy going forward.

Why Oracle needed NetSuite

Oracle is buying cloud-based CRM/HR/ERP provider NetSuite for $9.3 billion, it announced recently. Although Oracle has been beefing up its applications capability through acquisitions over the past several years, most acquisitions were far smaller. Only its previous acquisition of PeopleSoft for $10.4 billion in 2014 is larger. Given the huge price paid, even though Oracle has plenty of cash on hand to make it happen, can Oracle actually get benefit from such an acquisition?

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Oracle has been shifting aggressively to the cloud over the past two years as its more traditional client/server based enterprise solutions have become less popular with customers. Indeed, its revenue mix has shown just how important cloud is becoming to Oracle's future. In addition, the traditionally lucrative market for enterprise back-office systems built on Oracle core database and related products that run most big companies has seen a good deal of encroachment from Oracle's competitors. Much of that encroachment relates to buying full solutions rather than traditional Oracle infrastructure on which custom apps were built, and most of them being served up in the cloud. This is particularly true in the mid-tier markets. Oracle is buying NetSuite at significant expense to bolster its competitive position in the cloud and to advance its own cloud-based capabilities, but also because it wants to be more competitive in small- to mid-tier markets.

Why buy NetSuite now? It is quite likely that had Oracle not gone this route, NetSuite would have been acquired by another company (likely candidates would be Salesforce, Microsoft, SAP, or possibly Amazon, which wants to offer more applications in the cloud and not just be a cloud server service). This competitive threat is now off the table. It's also true that Oracle has had some trouble selling into mid-tier accounts, a market that is growing faster than enterprise. NetSuite can

give Oracle a competitive advantage in this market segment. And finally, it is a "poke in the eye" to competitors, particularly Salesforce and Microsoft, which have been taking mid-market share.

What isn't yet clear is what this all means for NetSuite customers. Oracle says it will run NetSuite as an independent company. But if the PeopleSoft acquisition is any guide, it likely won't be long before Oracle decides to fully integrate NetSuite into its own offerings. This will likely mean price increases for existing NetSuite customers and links to other Oracle products and services. There is some limit to what Oracle can do here if it wants to stay competitive, but it often finds a way to increase revenues despite market pressures.

So is this a winning strategy for Oracle? This acquisition does give the company a major path to more cloud-based revenues – something that is critical to its future. And despite NetSuite's current unprofitability ($125 million loss in 2015), it's likely that Oracle can quickly turn NetSuite's revenues profitable by "streamlining" the organization and leveraging Oracle's current channels and overhead functions.

In addition, the massive resources that Oracle can bring to bear on R&D and services should help NetSuite stay ahead of the pack and remain highly competitive in a market that has been consolidating of late. And despite Larry Ellison's personal gains from this transaction (he was an early investor in NetSuite), we believe this is a good acquisition for Oracle (although perhaps an expensive one) that will allow the company to gain market share and revenue benefits long term. Overall we rate this acquisition as a positive for both Oracle and NetSuite.

HP Reinvents itself – but can it win?

After the split from HP Enterprise, HP is attempting to reinvent itself, and attack a marketplace for PCs and printers that has grown mostly moribund and problematic. It is partially constrained by the limits the split has put on it. HP must concentrate solely in the PC space since it's not allowed to move upstream and build servers as HPE has the rights to that market. And HP has limited ability to provide services outside of support services, as HPE has reserved working with SIs for itself, at least until it divests its own SI functions.

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In printing and imaging, HP does have a relatively clear field as it is still a market leader in most categories, although HP's revenue in the traditional printing market is shrinking, along with the market in general. But its attempts to be a leader in the emerging field of 3D printing, especially at the high end where the real money is, will likely be a success, and compensate for shrinking ink jet and laser printer sales. However this may take 2-3 years to emerge in any substantial way as the market is still in its infancy. Still, this bodes well for a key foundational piece of HP's future, and a strong expansion of its traditional leadership in all things printing. Further, starting in the higher end of the market will allow it to create a technology waterfall effect as serious lower end 3D printing requirements emerge in the next several years. But despite this market advantage, questions remain about how the new HP grows and become more prosperous?

One of our concerns is that in the new HP, there is still very little "synergy" between the end point (PC) space and the printer space. So far we've seen little effort by HP to make the two halves of the business greater than the sum of its parts. HP has produced the Sprout PC which is geared towards exploring and expanding the realm of 3D and cognitive computing, and uses technology from both the PC and

imaging sides of the company. Despite the promise such a product has on reinventing ways to interact with computing, Sprout so far has had limited appeal – both due to high price and to lack of compelling apps. But it did provide HP with an avenue to explore new computer interaction mechanisms that will potentially provide it with future benefits, particularly in AR/VR.

AR/VR is an area HP hopes to exploit as it becomes more tangible. But so far this market has been plagued with more hype than reality. And most systems addressing this market have been clumsy at best. HP's backpack-cased Omen is a milestone in making portability a reality in performance AR/VR systems, especially for commercial applications. But until the market catches up with the need for such systems, the numbers sold will remain small. Still, it's an area where HP showed leadership and that's important in order to establish position. We expect significant growth in this market in the next 2-3 years, beginning in gaming but expanding to many business and consumer applications that can truly take advantage of the ability of AR/VR to enhance user productivity and insights.

We believe that HP needs to do more to leverage the two sides of the house to create more compelling products and establish itself more aggressively in growth areas. This includes finding new ways of merging end point computing and imaging to produce compelling new product sets. If it can do so successfully, HP will have a real advantage in the market as its primary competitors have neither the technology nor the IP that HP has available at its disposal. Nevertheless, with a potentially problematic existing separation of the two major groups within HP, it's not yet clear whether it can do so to best advantage. The next 1-2 years should show whether it can successful leverage the two major components of its business to achieve a sum that is greater than its parts. Silos won't work for HP long term, and if can find better ways of merging the two groups, it will be well ahead of its competitors in the field of 3D, AR/VR and 3D printing technologies.

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