Machine Learning Adoption Offers Significant Opportunity Ahead

Summary

We hosted ten software/internet/semiconductor companies that address the burgeoning opportunity in machine learning and big data applications during our Silicon Valley Seminar. While learning about the significant TAM opportunity given potential use cases, we gained insight into the business models under consideration as vendors tackle the opportunity. Our key takeaways are below.

Company	Symbol	Price (8/04)	Rating Prior	Rating Curr	PT
Hortonworks, Inc.	HDP	$14.86	–	Neutral	$14.00
salesforce.com, inc.	CRM	$90.45	–	Buy	$100.00
ServiceNow, Inc.	NOW	$109.71	–	Buy	$125.00
Splunk Inc.	SPLK	$59.75	–	Neutral	$60.00
Teradata Corporation	TDC	$31.91	–	U-P	$26.00

Source: Bloomberg and Mizuho Securities USA

Key Points

Data and the ability to mine it remain top priorities. In addition to data accessibility, the ability to gain insights from data via machine learning techniques remains an area of investment among vendors and customers. SaaS architectures lend themselves to better data access, given the consolidated architecture in the cloud vs. on-prem implementations that could be more segregated. Sharing of insights across customers in the installed base could result in data privacy concerns, given the competitive nature of these insights.

Vertical application is a potential n-t route to ML adoption. Given the seemingly infinite use cases of ML, early adoption could benefit from vertical-focused solutions that address very specific pain points as potential customers test the waters with early investments. Various demonstrations by Linc Global clearly articulated the value proposition by such solutions. Over time, we think ML can offer TAM expansion opportunities for various vendors. For instance, Splunk could enter into customer retention and revenue optimization markets for certain verticals due to its strength in data centers.

Adoption hurdles likely, as with any emerging technology. Data privacy, as mentioned, is a key detractor of ML adoption that is likely to persist, though, the conversation could evolve to the ultimate, significant value proposition of such capabilities. This issue is especially top-of-mind in end-consumer facing applications. Further, we also find the massive innovation in the open-source ML ecosystem, while very encouraging, ultimately somewhat confusing for customers as they look to make early investments. The sheer competition for analytical frameworks could make monetization for vendors challenging.

Coverage takeaways. We note: 1) CRM and NOW are favorably positioned, given the breadth of use cases/verticals addressed, and concentrated investments in ML (e.g. HR bot for ServiceNow); 2) we like Splunk's presence in the infrastructure/analytics stack with very tangible benefits for customers; 3) TDC could remain under pressure as cloud-native vendors such as Snowflake address data warehousing needs, particularly for mid-market customers; 4) challenges for open-source business models could persist amid intense competition.

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Executive Summary

We hosted a group of ten Software, Internet, and Semiconductor companies that helped us evaluate trends in the machine learning (ML) and big data application spaces. Adoption of the technology is clearly in its early days but offers significant potential due to the ongoing significant growth of digital information and gains in processing power. We think many software vendors that automate routine interactions will likely have to lead the adoption in order to differentiate themselves and create a sustainably thriving business in the long-term. As highlighted in our detailed report on the topic (Self Driving Business on the Horizon? A Look at Enterprise AI), vendors are targeting all three areas within software stack (infrastructure, analytical tools, and applications) as they tackle the opportunity.

Key takeaways from the meetings are highlighted below:

- In the very near-term, vertical-specific applications could present a relatively smoother route to market for application vendors. Given the seemingly infinite potential use cases of machine learning, solutions that address very tangible pain points for customers (either enterprise or consumer) are likely to see adoption over the next few years.

- Data continues to be regarded as the crown jewel of assets as customers begin deploying early generation ML solutions. However, an issue in keen focus is the ability for enterprise vendors such as ServiceNow to share insights of one customer across the installed base in a bid to increase the value proposition for customers; while the capability is there (given the multi-tenant architecture of many SaaS vendors), privacy concerns could impact the ability to offer these insights. We think technology will likely further enhance the position of SaaS providers where we expect Salesforce.com and ServiceNow to continue performing well.

- While ML related technologies could reduce the need for employees needed to do many tasks thereby putting pressure on seats sold by companies like Salesforce.com and ServiceNow but value of each seat sold will be materially enhanced. As such, if executed well, the adoption of these solutions should actually enhance their overall revenues.

- Machine Learning presents a clear TAM opportunity for many vendors, though the actual magnitude is likely varied across vendors. While Splunk could benefit from its presence in customers' core infrastructure that can help expand its TAM into areas where it is not currently present, such as customer churn reduction in the telecom sector. Other vendors, particularly in the open-source world, could face a tougher time monetizing their solutions given the intense competition from competing frameworks.

- Cloud, given its scaling benefits and potentially 'infinite' processing power, creates a path toward greater data processing and, ultimately, higher

adoption of machine learning over time. Cloud-native vendors such as Snowflake are competing for modern workloads typically addressed by legacy data warehouse vendors such as Teradata and Netezza.

The following section contains further details on our takeaways.

Vertical Applications Offer Significant Near-Term Opportunities

The presentation by Linc Global underscored the disruptive effect of ML on end-user applications; the company addresses customer service oriented use cases for the retail vertical, whereby, ML improves service levels for end customers. By reducing the human involvement in rote requests, Linc's product allows retailers to deliver more consistent customer service. The company demonstrated how consumers can interact via web interfaces or devices such as Amazon Echo/Google Home to check on the status of an order or process returns etc. without involving a human for such an interaction. The system can also explore up-sell and cross-sell opportunities while interacting with the consumer. We believe the value proposition from such offerings is easy to articulate and quantify – retailers can save money on customer service headcount while improving user experience, given that the learning algorithm has all the relevant customer information (past transactions, interactions etc.) available. Therefore, the need to ask for redundant information is reduced.

We believe the demonstration by the company highlighted the opportunity as well as challenges presented by machine learning for vendors such as Salesforce.com and ServiceNow. Clearly, if value proposition of such solutions is in reduced headcount for customer service teams in addition to better user experience, we could expect potentially fewer seat sales for customer support roles across industries over time. However, the deflationary effect on seat sales could more than likely be offset by the value that vendors charge for those seats in light of the headcount reduction opportunity that the product offers. That said, we think the trend also underscores the importance of investing in big data and ML technologies by application vendors. Over time, we think that if companies choose to underinvest in these emerging trends, they could expose themselves to disintermediation by vendors that build solutions that heavily rely on these core technologies. Salesforce.com, ServiceNow and Splunk are adopting these technologies within their core applications which, in our view, can help create better SKU differentiation, thereby, offering a pricing uplift over time. In addition, we are not as concerned about potential reduction in unit volume if these vendors can successfully deliver additional functionality to justify higher pricing.

Control of Data Seems Extremely Important to Monetize ML

One common theme across multiple presentations was the importance of data accessibility and the corresponding ability to mine it. For instance, ServiceNow has access to all of its clients' data but it cannot rely on lessons learnt from one customer

to help another; each customer's dataset could be very different, making it tough to extrapolate conclusions. Secondly, these vendors could be contractually limited in using customer information for other potentially competitive organizations. This challenged is inflated for consumer facing solutions such as Salesforce.com or Linc Global. Technologically, these applications can study consumer preferences based on one retailer's dataset and offer these potentially revenue-enhancing insights to other retailers that the customers visit. However, such information sharing with an eye to competitive implications could make it tough to fully benefit from the underlying technologies. That said, we think over time companies will likely figure out a common ground on the level of information that they are willing to share as potential benefits to the business and consumers could be significantly greater.

Furthermore, access to data will likely further help accelerate the adoption of on-demand solutions, especially for customer facing solutions. We think SaaS vendors that have visibility into all of their customer information will likely have an advantage over on-premise vendors that might not be able to fully understand their customers' implementations and draw meaningful insights. We expect companies such as Salesforce.com and ServiceNow (as well as other SaaS players) that are investing in these sorts of analytical toolkits to benefit from the trend.

Machine Learning Presents TAM Expansion for Many Vendors

Splunk's presentation informed attendees with regard to some of the new applications being tested and pioneered by the company's installed base. For instance, Splunk understands its customers' infrastructure extremely well as it constantly evaluates associated log file information. The company is investing in various analytical tools that can help predict any possible problems in datacenters, thereby, potentially preventing issues before they occur. Further, since the company has visibility into the entire compute, networking and storage stack, it can develop a strong understanding of customer usage as it looks at further monetizing these capabilities. For instance, for telecom customers of Splunk, the application can easily understand end-consumers' phone or cable usage based on log file processing at carrier datacenters. As such, the company can better predict customer churn or dissatisfaction levels versus other dedicated marketing or customer management solutions providers. We note that similar advantages have helped ServiceNow gain entry into customer support arena and Splunk could become the analytical tools provider for revenue and customer experience optimization. While it is tough to quantify, we think investments in machine learning and AI could potentially help Splunk expand its market opportunity over time.

Analytical Tools Seem Important But Tough To Monetize

Most of the participants at our seminar are using open-source technologies to build their machine learning and analytical capabilities. While Hadoop vendors (Hortonworks and Cloudera) are gaining from adoption of these technologies, it

seems to us like there are too many open-source solutions available currently, thereby, creating some monetization challenges for vendors. We think since the technology is in its early days, customer requirements are very fluid and require flexibility; open-source solutions fit perfectly with these requirements. In addition, organizations building these solutions tend to be fairly advanced in their technical capabilities, which can lend itself to open-source adoption. Over time, we expect some analytical tools to mature and become more dominant than others but the ability to monetize the space will likely remain highly difficult. We also see the emergence of new infrastructure solutions such as Kinetica, a provider of in-memory database solutions that run on GPUs. Parallel processing power of GPUs can help process machine learning applications more efficiently. We think such emerging infrastructure solutions will be highly disruptive for existing providers.

Cloud-based Technologies Gaining Momentum

Snowflake highlighted how some of the legacy solutions like enterprise data warehouse can benefit from cloud adoption. With the rise in data volumes, we think processing needs commensurately increase with cloud adoption inevitably (particularly in the mid-market). Snowflake is currently gaining traction at the upper-end of the market for enterprise data warehouse solutions and, over time, we expect it to also become more meaningful in the middle tier. The company has built a cloud based solution for analytical workloads, tackling a market that was traditionally dominated by Teradata, Netezza and other larger enterprise vendors. However, cost and complexity associated with those solutions hindered their adoption in mid-markets, which we think Snowflake can effectively address. Further, we also believe Teradata will likely have greater competition as it works on its restructuring initiatives that are targeted at making the company's solutions available in different deployment modes that include appliances, cloud deployments, implementation on commodity hardware and managed services.

Price Target Calculation and Key Risks

Hortonworks, Inc.

Price Target: Our PT is based on 3.5x our 2018 total sales estimates.

Key Risks: We think lack of profitability is a big concern for investors and could weigh on the stock if the market becomes difficult. Although HDP completed a secondary offering, a tougher spending environment could weigh on cash profitability. Additionally, the technology is still in the early days and needs to mature for broader adoption. Lastly, execution challenges and demand conditions could impact the stock materially.

salesforce.com, inc.

Price Target: Our $100 PT is derived using an equally weighted three-pronged valuation approach, which includes a DCF, EV/FCF, and Enterprise Value (EV) to Bookings analysis. Our assumptions use CY18E estimates and are based on comparables in the enterprise software universe. Based on an EV to bookings multiple of 5.0x, we come up with a share price of $96. For our EV to free cash flow analysis, we have calculated a share price of $98 based on a 25.0x multiple. Finally, our DCF assumes a discount rate of 10% and a terminal FCF multiple of 15x; based on these inputs, DCF analysis implies a price estimate of $108.

Key Risks: Risks to our price target include any missteps in execution, which could lead to margin compression and depressed cash flows. Also, given the company's track record of strong growth, expectations have had a tendency to move ahead of reality. Investors have come to expect strong performance and any disappointment could put pressure on the stock. As the largest pure-play SaaS company, CRM gets lumped in with high multiple cloud names, despite valuation that's more reasonable. As these names experience volatility, so too does CRM. The company could also be at risk of disruption by any of the emerging cloud solutions in the marketplace. We see this as unlikely at this point as the company is very focused on extending its market leadership.

ServiceNow, Inc.

Our price target is based on three-pronged approach that uses equal weighted DCF, EV to billings and price to CFFO analysis. On EV to CY18E billings basis, we derive a PT of $125 based on a multiple of 7.5x. For EV to FCF, we get price of $115 based on a multiple of 30x. Lastly, for DCF, we used discount rate of 9% and terminal multiple of 13x, implying perpetuity growth rate of 1%. Based on these assumptions, we get a price of $133. As such, our equal weighted average price target amounts to $125.

We believe the biggest risk to our positive thesis comes from execution missteps especially as the company is growing rapidly. Secondly, competition will become stiffer over the next couple of years.

Splunk Inc.

Price Target: Our price target is based on a three-pronged approach that uses equal weighted DCF, EV to Billings and EV to FCF analysis. On EV to FY18E billings basis, we drive a PT of $64 based on a multiple of 5.5x. For EV to FCF, we get a price of $58 based on a multiple of 30x. Lastly, for DCF, we used a discount rate of 10% and a terminal multiple of 11x, implying a perpetuity growth rate of 0.5%. Based on these assumptions, we get a price of $60. As such, our equal weighted average price target amounts to $60.

Key Risks: To the upside, we believe the biggest risk is potential re-acceleration of license revenue growth as the company works through the transition to the cloud,

in addition to better-than-expected profitability gains. Further, in the event of an acquisition, the company could fetch a material premium over current levels given the strategic nature of the asset. To the downside, we believe the business model transition could heavily weigh on license revenue growth and meaningfully slow profitability gains.

Teradata Corporation

Price Target: Our price target is derived using an equally weighted three-pronged valuation approach, which includes a DCF, P/Earnings, and Enterprise Value (EV) to FCF analysis. Our assumptions are based on comparables in the software universe.

Based on an EV to FCF multiple of 12.0x our CY18 FCF estimate, we come up with a share price of $26. For our price to earnings analysis, we have calculated a share price of $27 based on an 22x multiple on our CY18 EPS estimate. Finally, our DCF assumes a discount rate of 12% and a terminal FCF multiple of 10x, suggesting fair value 12 months hence of $25. This implies a free cash flow perpetuity growth rate of about 2%. Given these inputs, we reach our 12-month price target of $26.

Key Risks: If the company's large deals accelerate, its estimates could move up materially impacting the stock price. Also, the company could experience less competition from enterprise application providers who are baking in increasing amount of analytics functionality in the base product.

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Investment Risks and Valuation Methods can be located in the following section of this research report - Price Target Calculation and Key Risks.

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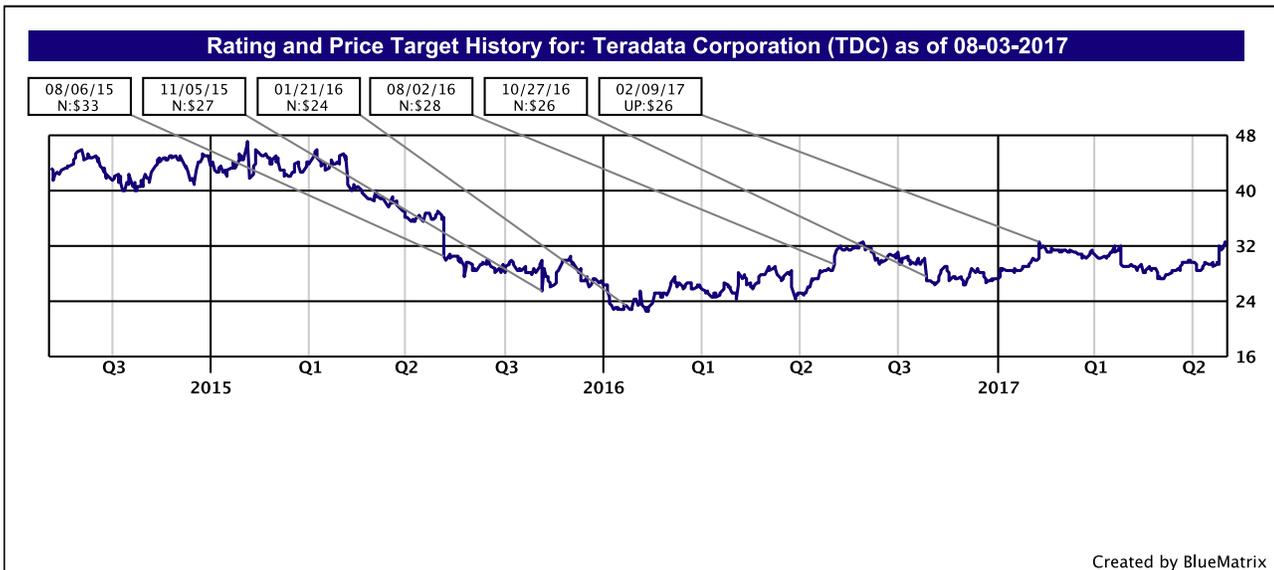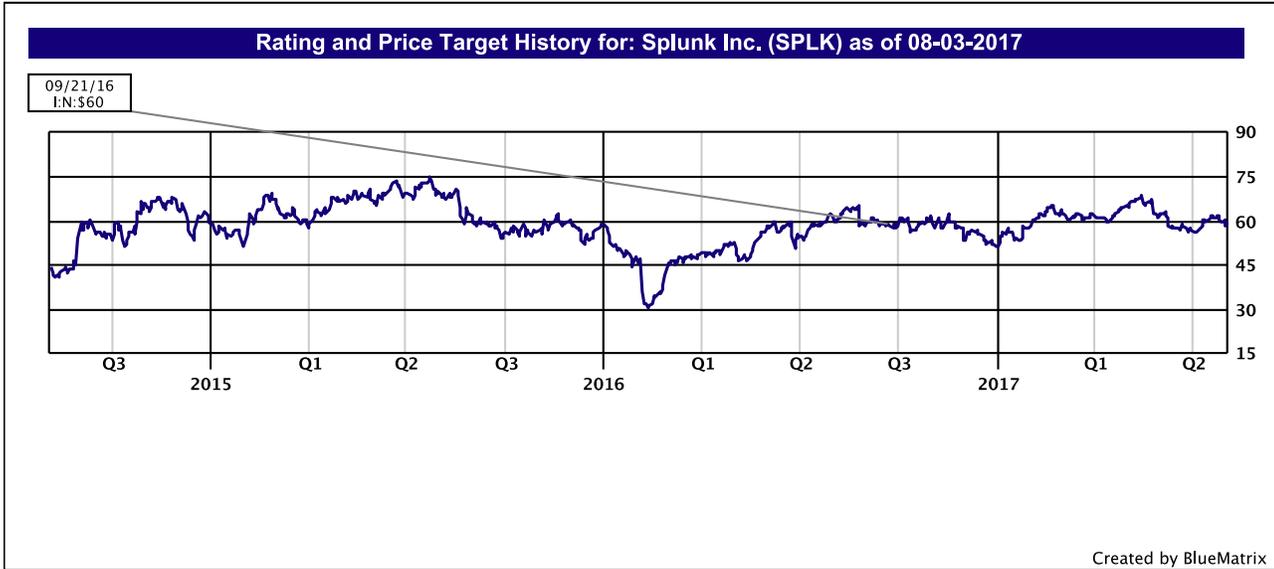
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(As of 8/04)	% of coverage	IB service past 12 mo
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Hold (Neutral)	51.74%	33.58%
Sell (Underperform)	5.79%	46.67%

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Rating and Price Target History for: Hortonworks, Inc. (HDP) as of 08-03-2017

06/16/15 I:B:$31	01/15/16 B:$25	02/10/16 B:$18	08/04/16 N:$10	01/30/17 B:$12	02/09/17 B:$13	05/25/17 N:$14

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Rating and Price Target History for: salesforce.com, inc. (CRM) as of 08-03-2017

01/05/15 I:B:$70	02/26/15 B:$80	11/18/15 B:$90	05/18/16 B:$100	08/31/16 B:$85	11/17/16 B:$95	05/18/17 B:$100

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Rating and Price Target History for: ServiceNow, Inc. (NOW) as of 08-03-2017

01/21/15 B:$80	03/17/15 B:$100	01/21/16 B:$90	01/28/16 N:$65	04/20/16 N:$70	07/14/16 B:$85	10/26/16 B:$90	01/25/17 B:$100	04/27/17 B:$110	07/10/17 B:$125

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Rating and Price Target History for: Splunk Inc. (SPLK) as of 08-03-2017

09/21/16
I:N:$60

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Rating and Price Target History for: Teradata Corporation (TDC) as of 08-03-2017

08/06/15	11/05/15	01/21/16	08/02/16	10/27/16	02/09/17
N:$33	N:$27	N:$24	N:$28	N:$26	UP:$26

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