PUSH™ TECHNOLOGY

Data Accuracy

USD

Sell

Buy

Deliver Quality

Real-Time Mobile Data

Critical Data at Speed

Mobile Delivery

GBP/USD

Low:1.54492   2.9   High:1.55026

Sell   1.54726   1.54757   Buy
        72⁸   75⁷

Sell   727   Buy   758

Data First Strategy

The Financial Services Mobile Revolution

How using mobility will help to defend and extend revenue and create differentiation

Contents

Why Improved Mobile Delivery is Urgent

Financial services encompass a broad range of organizations. For the purpose of this white paper, we define financial services organizations as credit unions, banks, credit card companies, insurance companies, consumer finance companies, broker/dealers, investment managers and hedge funds. This white paper highlights many of the shared challenges these different organizations face as they embrace the communication age to deliver financial services on mobile devices. Consider the following:

- **Hedge Fund Manager –** A hedge fund manager, doing business remotely on his tablet, notices that a security's price on the New York Stock Exchange is trading out of sync with its corresponding futures contract on Chicago's exchange. The trader simultaneously sells (short) the more expensive of the two and buys the other. Doing so in real-time and because information is accurate provides the opportunity to profit from the difference[1] . Now consider that this is only one hedge fund manager making many trades per day. Multiply this by the thousands of hedge fund managers across the world with the top twenty stock exchanges; and the urgency to deliver intelligent data, in real-time becomes financially imperative.

- **Consumer Banking** – In the US, mobile banking usage jumped to 32% of customers from 21% in 2011[2]. Consumers value the convenience of mobile devices for straightforward tasks such as checking a balance. But if the app does not have extensive functionality, does not load or does not have accurate information, customer loyalty and therefore retention can be at risk. The Bain report showed that if the experience is good "mobile banking is more likely to increase a US customer's likelihood of recommending the bank than any other channel interaction[3]. "

- **Consumer Trading** – Grab an iPhone and ask Siri a question – What is Apple's stock price? You will get an immediate answer – Apple is at X price today, down or up a percentage. You'll also get the details of what the price was when the market opened, closed; its high and low, market cap and average.

> *"financial services have a requirement to deliver data to multiple devices, in real-time without affecting performance"*

While all very different examples, each seeks to show that financial services have a requirement to deliver data to multiple devices, in real-time without affecting performance. This requirement, however, does not come without challenges.

This white paper will provide an overview of some of the biggest challenges facing financial services organizations as they seek to deliver mobile content and services. Key issues this paper will address include:

- The impact critical data sent slowly versus in real-time can have on the business.
- How data relevance can be improved if intelligence is applied to its distribution.
- Why supporting multiple devices is not a nice to have, but essential.
- The reasons financial apps need to be faultless.
- Why removing the mobile data middleman can improve customer service.

[1]*Investopedia, How To Invest Like A Hedge Fund,*
http://www.investopedia.com/articles/mutualfund/08/hedge-fund-invest.asp#axzz2NFFrdHjb
[2]*Bain, Customer Loyalty in Retail Banking: Global Edition',*
http://www.bain.com/publications/articles/customer-loyalty-in-retail-banking-2012.aspx
[3]*Bain, Customer Loyalty in Retail Banking: Global Edition',*
http://www.bain.com/publications/articles/customer-loyalty-in-retail-banking-2012.aspx

Mobility's Impact on Financial Services

Mobility has revolutionized the financial services industry by eliminating traditional methods of working. Financial services organizations need to ensure that capital markets, wealth management, retail banking and e-commerce transactions can be done in real-time, anywhere in the world on any mobile device. Gone are the days of knowing where customers will trade, bank or shop as they increasingly transact from remote locations. Instead, financial service organizations must support customers as they access services on the move.

Gartner predicts that this year, mobile devices will surpass PCs to be the most common Web access tools. Financial institutions have recognized that mobile is no longer an option, but instead a must have strategic channel to reach customers. Celent reported that "financial institutions are investing in more capable online and mobile platforms… [and that] fielding and maintaining a competitive mobile channel is a high priority toward achieving retail banking strategic objectives among 81% of banks and 93% of credit unions surveyed[4]."

With these considerations, financial services organizations are challenged with how to deliver critical and intelligent data at speed to mobile customers and employees. Data moving across networks needs to meet expectations for speed and reliability to ensure competitiveness, quality of service and customer acquisition and retention. For the organization, this needs to be done both cost-effectively and without interfering with the existing business.

The problem is that whilst most financial services organizations have a mobile messaging offering in place, this is no longer sufficient to remain competitive. Networks are becoming clogged, bandwidth is insufficient and, as a result, financial services organizations are increasingly losing the speed and functionality required to support customers on any device and with dynamic and real-time content. These organizations must act now to address this critical issue or risk lost revenue opportunities.

Critical Data at Speed

All financial services organizations are driven by critical data. But now that critical data has been extended outside a company's firewall. Instead critical data must be available anywhere employees conduct business, on any mobile device. Whether it is the hedge fund manager running trades through multiple brokers requiring updates on his tablet or an investment bank's single-dealer platform (SDP) being accessed via a smartphone, the data being aggregated, delivered and used to make trading decisions anywhere is critical. Nicole Sherrod, managing director of the Trader Group at TD Ameritrade said in a Futures Magazine article[5], "Speed is a consideration for anything you're doing with mobile technology; you're at the mercy of whatever kind of connection you have." And if critical data is not delivered or is even a millisecond too late, opportunities can be missed and profit could be at stake.

Without the capability to transmit, internally or externally, the critical data necessary to make informed decisions, financial services organizations will lose customers and revenue. Real-time speed is essential, but it is not only speed that is important; it is also what data is sent.

[4]*Celent, a research and consulting firm focused on the application of information technology in the global financial services industry, "Emerging Technologies in Retail Banking: The Long Road to Customer Centricity",*
http://www.celent.com/reports/emerging-technologies-retail-banking-long-road-customer-centricity
[5]*Futures "Cutting the Cord," http://m.futuresmag.com/2011/10/01/cutting-the-cord-mobile-trading-101*

Data Accuracy, Intelligently

If a financial services organization is sending data to a mobile device, but that device loses connectivity, upon resumed connection, if that data is out of date by even minutes, a revenue-generating opportunity might be lost. What is required instead is a way to distribute data to any mobile device and remove replication or out of date data – automatically. Essentially, these organizations need the ability to throw away irrelevant data.

Consider where an investor requests to sell a security via a mobile device. If the network is busy because bandwidth is wasted on sending static or old data, the price might no longer be available when the order is received. The execution of that order will not be filled and as a result the broker loses the cost of the trade and/or the customer.

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Data accuracy within this sector impacts greatly on the customer experience and the revenue generating opportunities available. Better data means more confidence from the customer, repeat visits and revenue generation.

Financial Apps Need to Deliver Quality

"Mobile spend will reach $1.3 trillion as the mobile apps market reaches $55 billion in 2016. Business spending on mobile projects will grow 100% by 2015. More than half of business decision-makers will increase their mobile apps budget…as they look for better ways to engage with customers and partners[6]." Financial services organizations not only need to provide apps to capture this substantial market opportunity, but also to meet consumer expectations.

The mobile app market explosion is a challenge as organizations seek to deliver the best possible mobile experiences or risk losing customers. Tealeaf, an IBM company, found that 85% of consumers expect the mobile experience to be better than online experiences using a laptop or desktop computer[7].

It is therefore imperative that financial services organizations are able to support customers with apps that deliver usable and smarter content to support this channel. The functionality of the app is pivotal. When an app crashes, it disrupts the user experience, may cause data loss, and worst of all, might even cause users to uninstall the app altogether. Capturing the market opportunity relies on technology that does not use traditional Web messaging capabilities, but instead supports a way of pushing only the data that is required, fast and to any app – not just iOS.

Support Multiple Devices

"One billion consumers will have smartphones by 2016. US consumers alone will own 257 million smartphones and 126 million tablets. Apple, Google, and Microsoft will be the software platform for more than 90% of smartphones and tablets worldwide. Carriers will compete for wireless spectrum and to support 5.8 million public Wi-Fi hotspots globally[8]."

According to research from Strategy Analytics, global smartphone shipments grew 38% annually to reach 217 million units in the fourth quarter of 2012. Android and Apple iOS together accounted for a record 92% share of all smartphones shipped worldwide.

[6]F0rrester, Mobile Is The New Face Of Engagement, February 13, 2012 industry, "Emerging Technologies in Retail Banking: [7]Tealeaf Brings Mobile Customer Experience to the Forefront,
http://www.tealeaf.com/news/news-releases/2012/Tealeaf-Brings-Mobile-Customer-Experience-to-the-Forefront.php
[8]F0rrester, Mobile Is The New Face Of Engagement, February 13, 2012

Global Smartphone OS Shipments (Millions of Units)	Q4 '11	2011	Q4 '12	2012
Android	80.6	238.9	152.1	479.0
Apple iOS	37.0	93.0	47.8	135.8
Others	39.4	158.6	17.1	85.3
Total	**157.0**	**490.5**	**217.0**	**700.1**
Global Smartphone OS Marketshare %	**Q4 '11**	**2011**	**Q4 '12**	**2012**
Android	51.3%	48.7%	70.1%	68.4%
Apple iOS	23.6%	19.0%	22.0%	19.4%
Others	25.1%	32.3%	7.9%	12.2%
Total	**100.0%**	**100.0%**	**100.0%**	**100.0%**
Total Growth Year-over-Year%	**55.9%**	**63.8%**	**38.2%**	**42.7%**

Strategy Analytics, Global Smartphone Operating System Shipments and Market Share in Q4 2012

The point here is that financial services organizations must look beyond iOS to support all devices and to know intelligently how to deliver the right data to that device.

Data First Strategy – Remove the Middleman

Financial services organizations no longer suffer from a lack of data. However, more data is not the same as the right data. Technology is no longer a barrier, but an enabler. You can get the normalized data in a structured format that you want from all your mobile applications, web, native and hybrid. Savvy firms are collecting this data to provide context around transactions and user actions, however relying on weblogs and third party analytics is not the most efficient way to capture this data. It removes the opportunity to engage in real-time with your customer.

The ability to collect user actions in one spot and in real-time will enable the business to gain insight into customer behavior and therefore make better strategic and marketing decisions. Having the ability to track users instead of polling for data from third party middleman, allows financial services firms to create the customer relationship they want, derive new revenue, and provide their customers with the mobile experience they want.

Web Based App Functionality

Financial services organizations are becoming less reliant on thick-client solutions for trading applications; instead opting to deliver rich experiences on any mobile, laptop or tablet device, anywhere. This move to Web based applications though impacts the ability to deliver and perform complex processing on the go. The challenge is that mobile applications still require significant performance capability and the data to move fast enough across the network to any device requesting the information. In addition, these devices do not have the processing power available on the desktop. Only by delivering an application with high performance complex processing capability combined with real-time data will financial services organizations have a solution to support a mobile workforce.

financial service organizations must look beyond iOS to support all devices and to know intelligently how to deliver the right data to that device

Mobile Network Performance and Bandwidth

Amazon found that every 100-millisecond improvement in Web page-load time led to a 1% increase in revenue[9]. Now consider how network performance issues could impact the opportunities available when supporting financial customers.

Network performance is affected by the efficiency in routing traffic across the network. The challenge is that most networks are not efficient. Instead, they are clogged with data that is not necessary for the end-user.

Akamai showed in its "State of the Internet[10]" report that the global average connection speed is 2.6 Mbps. The report found that mobile data traffic, which doubled from the first quarter of 2011 to the first quarter of 2012, ranges in average connection speed from 322 Kbps to 6.0 Mbps, a variance that can have a significant impact on mobile web performance. Despite the variances in connectivity rates, consumers often expect mobile Web experiences to emulate, if not improve upon, desktop Web experiences.

When accessing information on a mobile device, latency becomes a problem as network components are not able to prioritize what is important. And while developers and network infrastructure support teams will understand all the technology and bandwidth necessary to get that customer the details of her bank account, if the app loads too slowly, she will go elsewhere. Multiply that by 20 million customers and you have a problem.

Financial services need to send and receive critical data from apps, better, faster and cheaper than the solution many already have in place. But instead of a rip and replace solution, these organizations require technology that can enhance the system in place.

Intelligent and Real-Time Mobile Data

Financial services organizations must enhance their current financial service mobile movement solution. Not doing this will only result in a competitor stealing the customer and revenue available from mobile offerings. When multiplying even $1 of lost revenue by 20 million customers, the financial loses or opportunities can be tremendous.

Push Technology's core platform, Diffusion™ delivers the right data, to the right device in real-time, intelligently. It offers high performance and connected multi-channel solutions to distribute data without the need for significant changes to existing infrastructures.

Diffusion provides a one stop, end-to-end solution for delivering real-time data services to network connected mobile clients. It provides all of the components required to deliver a scalable, high performance solution across a broad range of client technologies. Diffusion offers a high throughput, low latency message broker; scalable, cross-platform connection infrastructure and intelligent traffic management and shaping.

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[9]*Digital Stats,* http://digital-stats.blogspot.com/2012/05/amazoncom-increased-its-revenue-by-1.html
[10]*Akamai, "State of the Internet"* http://www.akamai.com/stateoftheinternet/

Diffusion™

Diffusion provides significant benefits to customers:

- Stream real-time, dynamic content over the internet to any device.
- Stream device-to-device over full bi-directional communication infrastructure – enabling a responsive and immersive customer experience.
- Network-driven analytics to provide insight and understanding of real-time data.
- Significantly reduce network and hardware requirements.
- Elastically scale to meet peak demands and market / product complexity.

With Diffusion, organizations will have a highly scalable, real-time data solution that can intelligently send the right data to the right device in real-time.

Conclusion

Push Technology's core platform, Diffusion, offers organizations the solution required to address these challenges and more with a highly scalable, real-time data solution that will help transform your business.

About Push Technology

We make the Internet work for our mobile-obsessed, everything-connected world. Leading brands like 888 Holdings, DAB Bank, IBM, and William Hill leverage our technology to power applications critical to revenue growth, customer engagement, and business operations. Learn how to deliver apps at scale and speed at **www.pushtechnology.com**

For further information
Visit **www.pushtechnology.com** or contact **sales@pushtechnology.com**