PAYMENTS INNOVATION ON STEROIDS

How Software Development Platforms Will Transform the Payments Industry

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Federal Reserve Bank of Chicago Conference on Payments Innovation in the Wake of the Financial Crisis, May 20-21, Chicago, IL
The Acceleration of Innovation and the Reasons Behind It
INNOVATION IN PAYMENTS IS ACCELERATING
YOU SEE IT IN THE PRODUCTS

Square:
A New Way For Merchants to Accept Payments Using Smartphones
INNOVATION IN PAYMENTS IS ACCELERATING
YOU SEE IT IN THE BUYOUTS

Big Transactions ... Even During the Financial Crisis

PayPal Buys Online Credit Provider BillMeLater for Almost $1 Billion
October 6, 2008

Visa Buys Payments Gateway CyberSource for nearly $2 Billion
April 21, 2010

American Express Buys New Payment Player Revolution Money for $300 Million
November 18, 2009
INNOVATION IN PAYMENTS IS ACCELERATING
YOU SEE IT IN THE PRESS RELEASES

About Five New (Big) Innovations Announced Each Month

MasterCard Joins Forces with Next Jump
April 9, 2010

TSYS Introduces The Hybrid Card
February 11, 2010

Chase Rolls out New Card Offerings to Help Mid-Size Companies
May 12, 2010

Visa and DeviceFidelity Collaborate to Accelerate Adoption of Mobile Contactless Payments
February 11, 2010

PayPal's New iPhone App Sends Money with a "Bump"
March 17, 2010

MasterCard Makes Payment Innovation Move with MasterCard Labs
April 15, 2010

mFoundry: Power to the People at the Point of Sale
November 18, 2009
PAYMENTS INNOVATION GRADUAL IN PAST
SO BURST OF ACTIVITY SURPRISING

Rapid innovation not the norm

- Payments industry unlike IT or pharma
- System interdependencies and chicken-egg problems create inertia

Innovation has occurred very slowly

- Paper check going strong after 700 years
- Plastic card for half century, mag stripe for 30 years

Banks and innovation not exactly synonymous

- Payment products (credit/debit/checks) commodities
- Heavy on marketing, light on innovation (see Amex Blue)
## PAYMENTS INNOVATION INFLECTION POINT
### INTERNET AND MOBILE HAVE IGITED INNOVATION

<table>
<thead>
<tr>
<th>Mobile devices are ubiquitous</th>
<th>• Rapid increase in super smart phones (great UI+computer+wireless)</th>
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<tbody>
<tr>
<td>Online is everywhere</td>
<td>• All devices become connected to internet so “off-line” disappears</td>
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<tr>
<td>Software moves to cloud</td>
<td>• Software applications move from local devices to cloud</td>
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<td>Payments bundled with</td>
<td>• Technologies make mashups cheaper and better</td>
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<td>transaction-related services</td>
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<td>Payments data more valuable</td>
<td>• Online advertising/data analytic technologies make result in</td>
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<td>for behavioral targeting</td>
<td>premium value for payments data and opportunities for mashups</td>
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<tr>
<td>“App Stores for Payments”</td>
<td>• Square is a free app for the iPhone/iPad but there are many more</td>
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How Software Platforms Will Help Spawn Innovative “Payments Apps”
Software platforms put users and app developers together

Developers get
- Code for common tasks
- Audience of users

Users get
- A single environment to use apps
- Cheaper apps since developers avoid duplication

Technology and business model
- APIs expose modules of code
- SDKs help developers
- Evangelists
- Pricing low or zero to developers

Successful Models:
- Windows
- Facebook Connect
- Android

New Building Blocks:
- Web 2.0
- Connectivity
- Cloud Computing

Cloud Computing:
- Applications on “server farm” connected through Internet (e.g. iPhone)
- Software platform may be in cloud too (FaceBook Connect, PayPalX)
- Software changes in cloud, not on device
More applications makes platform more valuable to users (end customers or intermediaries)

More users makes platform more valuable to users

This creates positive feedback effects aka virtuous circle

Common model is to make platform free to developers and make money from users
Your iPhone gets better with every new app.

Applications for iPhone are like nothing you've ever seen on a mobile phone. Explore some of our favorite apps here and see how they allow iPhone to do even more.
Square enables merchants to sign up to take cards quickly and accept cards using **an iPhone**.

Square wrote an application that runs on **the iPhone operating system**.

Square connects to processors using **the IP Commerce payments software platform**.

- **Processors**
- **IP Commerce**
- **SQUARE**
- **SQUARE INNOVATED FAST USING SOFTWARE PLATFORMS**
- **QUICK ROLLOUT USING IPHONE OS AND IP COMMERCE**
- **iPhone OS**
- **iPhone**
Cloud computing plus internet connected devices provides opportunity to move innovation “to the edge”

• Away from innovation within devices or within proprietary software applications run by firms

• Towards the edge where “platform” can connect to payments plumbing (devices, processors, networks, etc.)

Owner of successful platform increases transactions and size through network effects

• More applications generates more transactions from more uses

• Grows customers through network effects
PAYPAL X HAS CREATED NEW ECOSYSTEM QUICKLY
25,000 APPS AFTER SIX MONTHS

Service Expansion

Applications

Comp to Developers

Dev Ecosystem Alliances

Dev Community Size

- PayPal Global P2P (push & accept): done
- Unbundled Card, ACH, Account-to-Account (within PayPal): done 4Q09
- Enrollment & Boarding API: done 4Q09
  - Mobile P2P (“bump“): done 1Q10
- Micro-payments: coming 2Q10
  - Loyalty: coming 2010
  - Identity/Authentication Provider: coming 2010
- Spiff & Residuals; done 4Q10
- Developer Sweepstakes ($500K+) done 4Q10
- VC Network for app funding: done 4Q10

- Lab equivalent with sandbox: done
- Announced forthcoming Marketplace (date TBD)
- Microsoft: 4Q09
- RIM: 4Q09
- Magento: 1Q10
- Facebook: 1Q10
- IBM: 1Q10
- SalesForce: 1Q10

25,000 Apps after six months

Note: SPECIAL THANKS TO CHIP KAHN, IP COMMERCE FOR THE DATA ON THIS SLIDE
Rentalics wins PayPal X 2009 Best Application Contest

- Rentalics is an eBay for renting things like your lawnmower
- Winning bidder gets code they give person they are renting from
- After they inspect item the renter gives code to owner and then a deposit is charged to the renter’s PayPal account
- Rentalics involves an online payment system being used for offline transaction—\textit{that’s the future!}
ENABLING SOCIAL COMMERCE IN LESS THAN 60 DAYS
getta! OPENS NEW MERCHANT-FRIENDLY CHANNEL ONLINE
Software Platforms Will Drive Innovation and Transform the Payments Industry
THE ROLE OF INCUMBENT PAYMENTS FIRMS
SOFTWARE PLATFORMS WILL HELP SOME, CHALLENGE OTHERS

Join Race to Own Software Platform

- Develop “middleware” layer over existing services
- Develop payments/other software services valuable to developers

Run “Rails” or Provide Other Services for Platform Owner

- Be to payments software platform what mobile carriers are to iPhone and Android
- Make money from transactions flowing over system

Risks and Rewards

➢ Network effects and desire for standards will limit number of successful platforms. Only some will succeed and they will win big.

➢ Business power could move to platform owner. See iPhone which moved power in mobile ecosystem from carriers to software platform providers.
• Already many developers working on PayPal X
• Significant apps already out there like Square and Bump

Rapid increase in innovation

• Payments platforms most useful to developers focused on applications that need payments
  • Advertising/marketing
  • Location-based services

Mashups of payments and other services

• Could lead to significant differentiation among existing networks
• He who controls the app store controls innovation

Change in competitive dynamics

PAYMENTS TO BE TRANSFORMED BY APPS ON PLATFORMS
INNOVATION ENGINE THAT WILL SPEED CHANGE
PAYMENTS IN 2020
IT'S ALL ONLINE

Massive increase in value of payments to consumers and merchants as a result of decade of innovation

All devices internet connected.
No such thing as “offline”.
Bricks and mortar stores have web-based POS devices.

Payments innovation driven by applications that work with major payments software development platforms.