AirPrint Networks
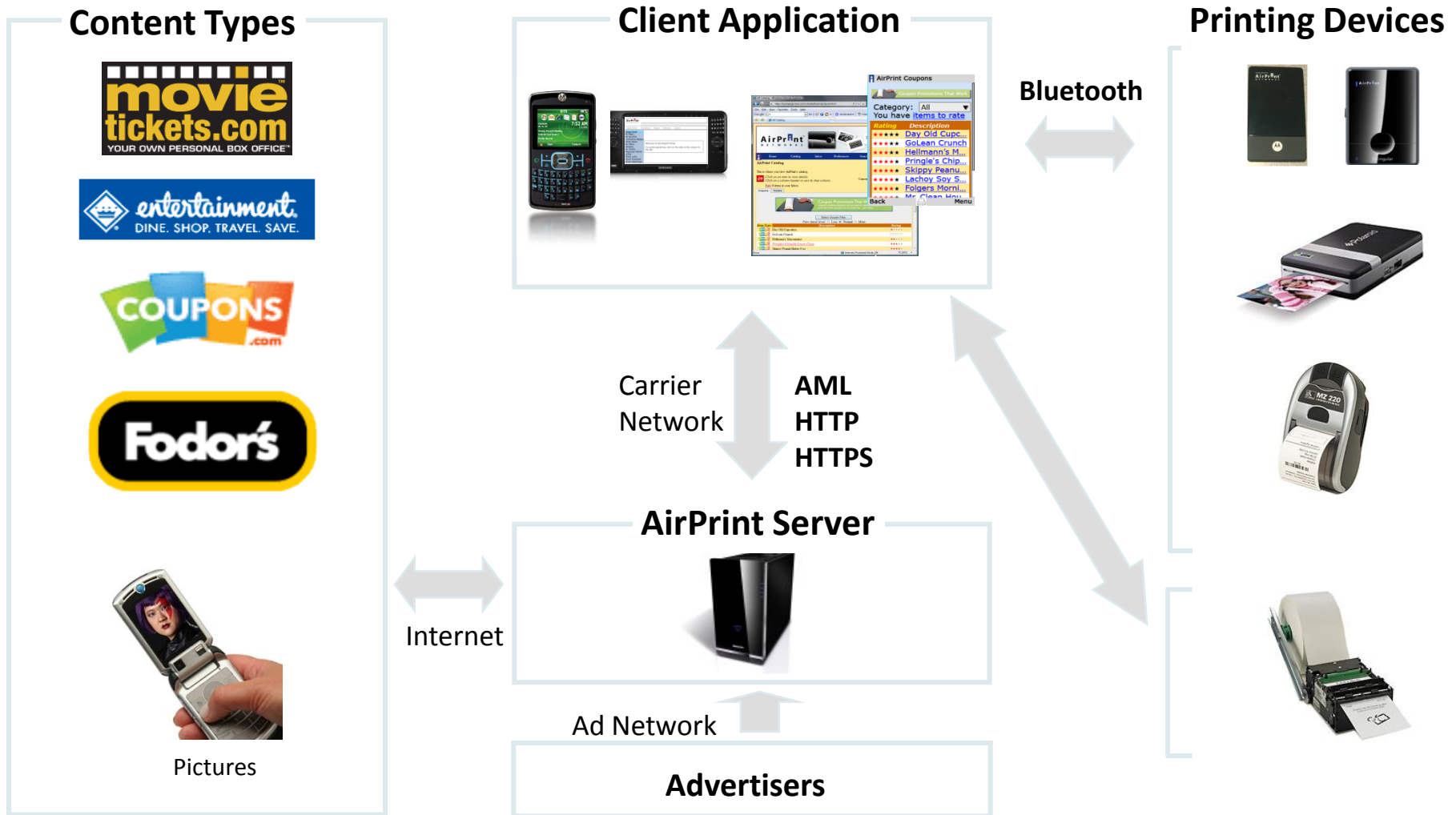
Managing an Outsourced Mobile Development Project

Jeff Walker: the software guy, Co-Founder

The Project

- **AirPrint is a venture funded startup**
  - 4 people in the US and 12-15 person team in China
- **Secure Mobile Content Delivery Platform**
  - "My stuff now" from anywhere: web browser or cell phone
    - Location aware application
    - Movie tickets
    - Entertainment.com (fundraiser coupon books)
    - Fodor's
    - Lottery Tickets
    - GPS tagged camera phone pictures
- **Viral and Community features**
  - Friends, ratings
  - What do my friends think is cool?

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Architecture Overview

Content Types

movie tickets.com
YOUR OWN PERSONAL BOX OFFICE™

entertainment.
DINE. SHOP. TRAVEL. SAVE.

COUPONS.com

Fodor's

Pictures

Client Application

Bluetooth

Printing Devices

Carrier
Network

**AML
HTTP
HTTPS**

AirPrint Server

Internet

Ad Network

Advertisers

Platform

- .NET server
  - Serves up web application and mobile pages
  - C#

- Client application
  - Windows Mobile as primary platform
    - Rich environment for rapid prototyping
    - Migrate developers between client and server since both were .NET, C#
    - Both Windows Mobile pro (touch screens) and Windows Mobile Smartphone platforms
    - WM Pro forced issues with other touch screen platforms, such as Android and iPhone
  - JavaME, Android and iPhone ports underway
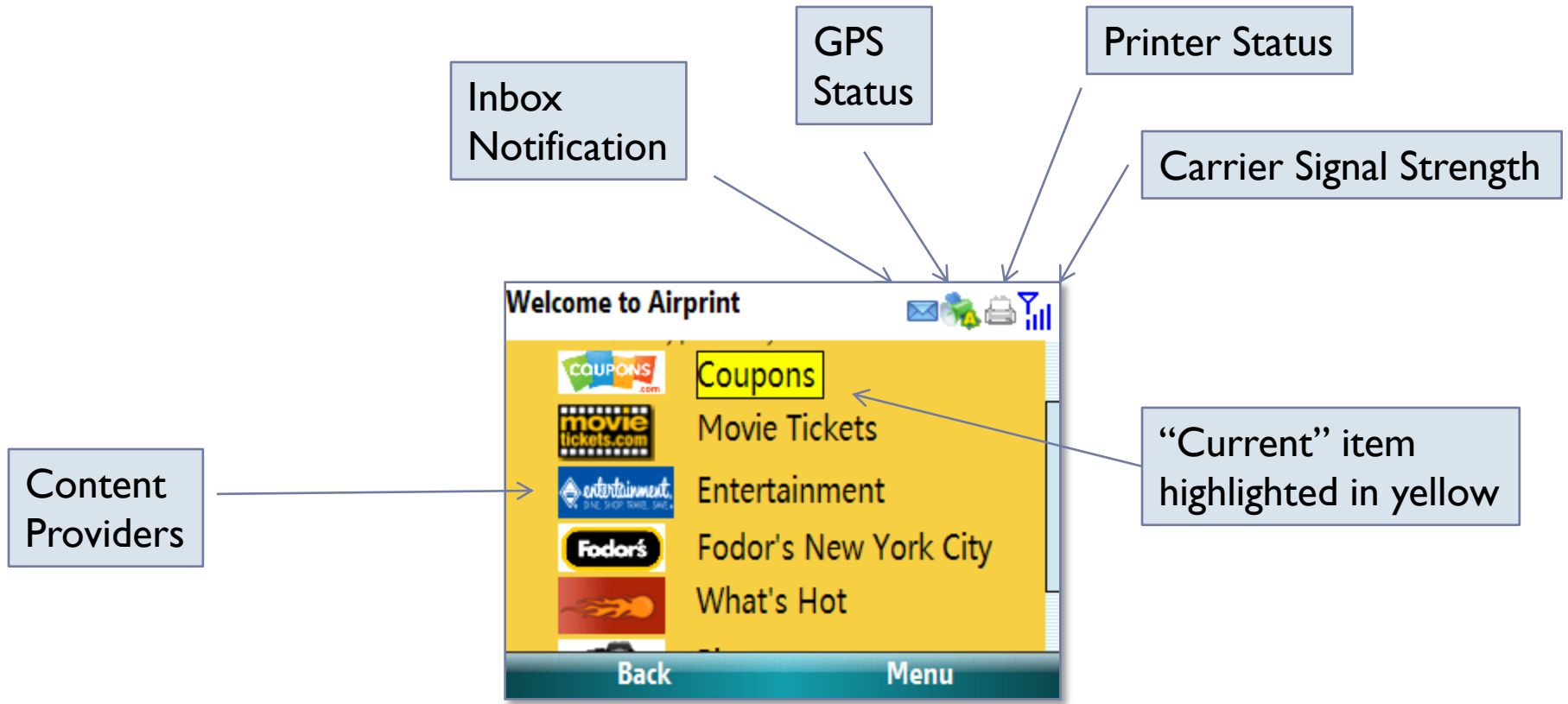
Home Page: Web App

Menu bar

Catalog menu

Content Providers

Notification Area

Home Page: Mobile App

Inbox Notification

GPS Status

Printer Status

Carrier Signal Strength

Welcome to Airprint

Coupons

Movie Tickets

Entertainment

Fodor's New York City

What's Hot

Back   Menu

Content Providers

"Current" item highlighted in yellow

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Mobile App Coupon Catalog Example
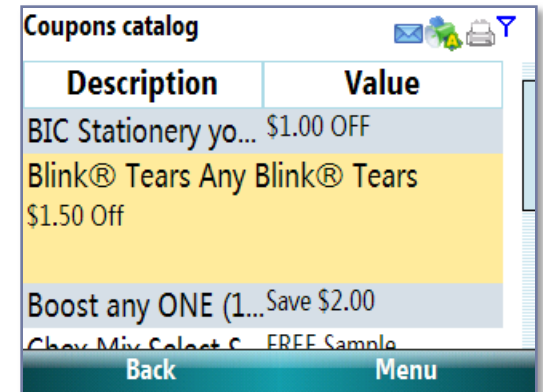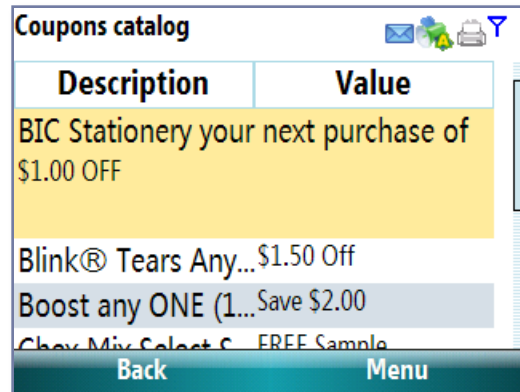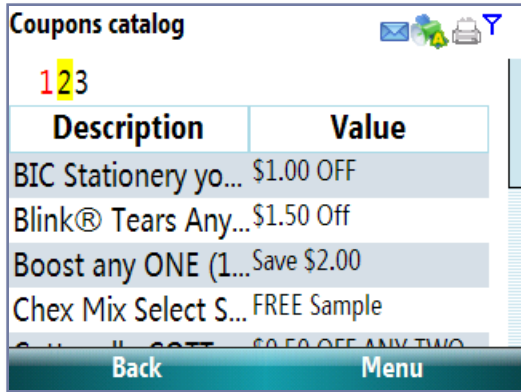
- ▸ Down arrow to move through catalog
- ▸ Item expands when selected and contracts when deselected

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The Team

- Me: Software Architect, Project lead, Bottle Washer
  - The only US based software resource
- Project Manager
  - Filipino guy based in China. Pretty good English skills.
- Technical Lead, Manager
  - Chinese guy. Limited verbal English, but good written English.
- Server lead
- Windows Mobile Client lead
- Individual contributors
- 3 Dedicated QA people

The Process

- 2 year development project (so far)
- Monthly major releases
  - Fodor's took a month
- Weekly minor releases
- NO BIG BANG!
  - High visibility into development progress
- Dedicated QA was key here
  - Constant QA of nightly builds
- Agile with MSF templates
  - Used Microsoft Team Foundation Server
    - Source control
    - Nightly Builds, regression
    - Work item and defect tracking

(Chinese) Outsourcing Plusses

▸ Development cost

  ▸ 1/5 of the cost per head

▸ Very Professional

▸ Friendly, anxious to please

▸ **Always** met the deadlines

▸ Generally good at **reading** English

Minuses

- +12 hour time difference
- Language and cultural issues
- Not a good "sounding board" resource
- "Senior" people *might* have 3-5 years experience
- 60% to 75% of the productivity per head of domestic resource
  - Communication inefficiencies
- Very reluctant to say no or to argue
- Everything must be written down
  - Challenge for a startup where requirements changed daily
- Conference calls were not very productive
- 9 hour days (8 + 1 for lunch)
  - They did stay late a few times when we had an emergency
- IM really only worked with the (English speaking) Project Manager
  - The others would have to run a translator to translate the IMs
- Travel to China is absolutely brutal

Mobile Specific Issues

▸ There are not a lot of people doing mobile development in China

▸ Lots of J2EE, .NET backend stuff

▸ Plan on a long ramp up time to learn mobile tools and techniques

▸ Emulators and the ability to use a simulated network with a real device are important (ActiveSync, etc.)

▸ EDGE is available through China Mobile, No 3G

  ▸ Data plans are amazingly cheap

▸ Testing on US carrier networks needs to be done stateside

▸ Sending stuff, like phones, takes about 2 weeks, unless customs gets involved (extra $ and an extra week)

Suggestions

▸ Do a phone interview with your PM before you start the project. If you can't communicate over the phone, get a different PM.

▸ You **must** travel to the outsource team to kick off the project

  ▸ Make sure you have solid designs and architecture written down before you go

  ▸ Give them plenty of time to review it before you arrive (weeks)

▸ Plan on going for at least 2 weeks on each trip

  ▸ It takes 1 week to adjust to the time difference

▸ Give yourself a couple of days to adjust to the time zone

  ▸ Go sightseeing. China is an amazing place.

Suggestions (cont.)

▸ Focus most of the time there with the PM and the tech leads

   ▸ Get to know them. Take them out to dinner. Don't be a hermit.

   ▸ Take them to nice restaurants. It is really cheap to eat like a king. You might want to fake being a vegetarian while you are there ☺

▸ Bring the PM and leads up to speed, **then** have a meeting with the whole team

▸ Have the leads play it back to the team in Chinese

▸ Lots of questions will come up from the team which will have to be translated

   ▸ Extremely slow process, but worth it

Suggestions (cont.)

▸ Figure out how to incentivize the team
  ▸ I started by using a bonus scheme
    ▸ Surprisingly, this didn't work at all
  ▸ They preferred to have team events, like lunches or dinners
    ▸ $10/head for a really nice lunch event
  ▸ Small baby gifts and sympathy flowers go a long ways
    ▸ This was apparently very unusual, but it was **highly** appreciated

▸ Check the weather
  ▸ It cools to 85 at night in Shanghai in August, 100+ during the day with 90% humidity
  ▸ Avoid July and August!

▸ Plan on traveling to the team at least once per quarter

Key Points

▸ The Project Manager on the other end will determine your **success or failure**

　▸ Must have good language skills

　▸ You must have good chemistry with the PM

▸ You must have everything written down

▸ Plan on communication inefficiencies

　▸ Everything takes longer

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