Bringing TV to the PC

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ZATTOO
TV TO GO

Live TV On the Internet!

Zattoo the Program

- Watch live TV on your computer
- Only need Internet connection
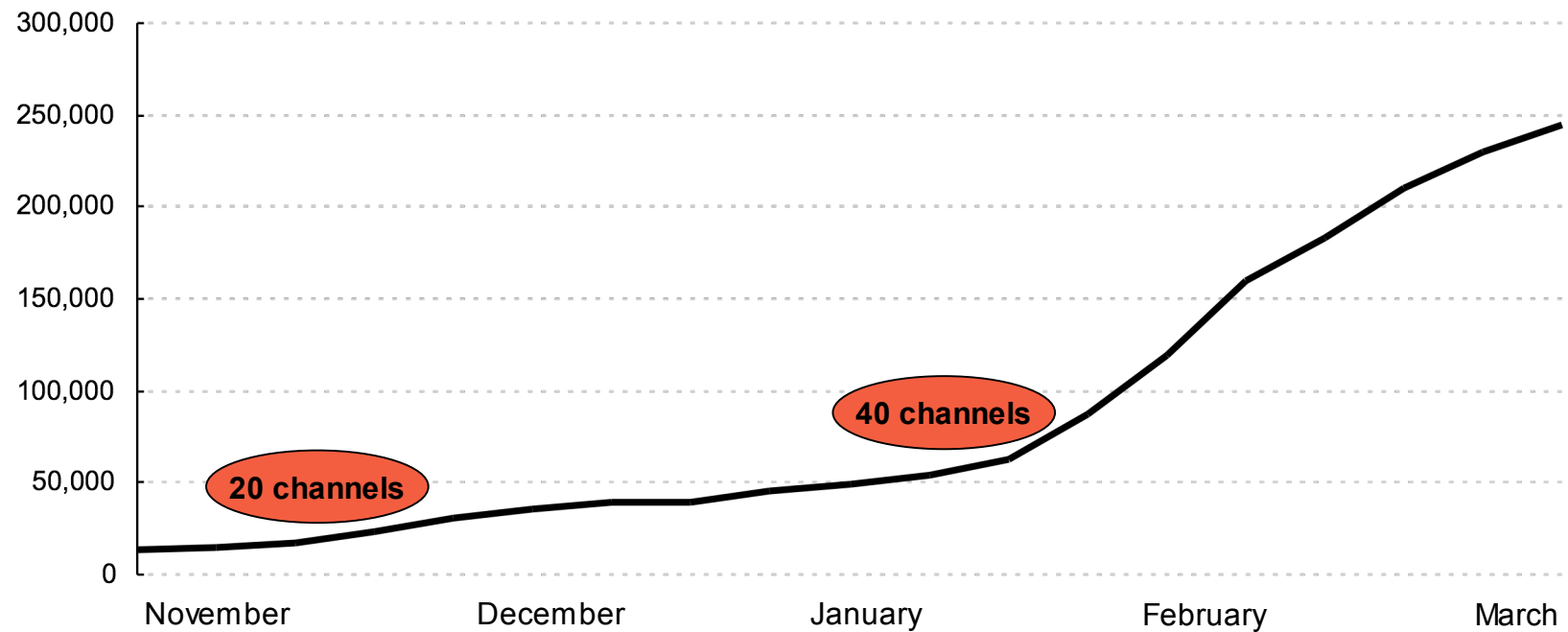- Linux, Mac, and Windows version

Zattoo's Benefits:

- One user interface
- Better video quality
- Significant cost reduction

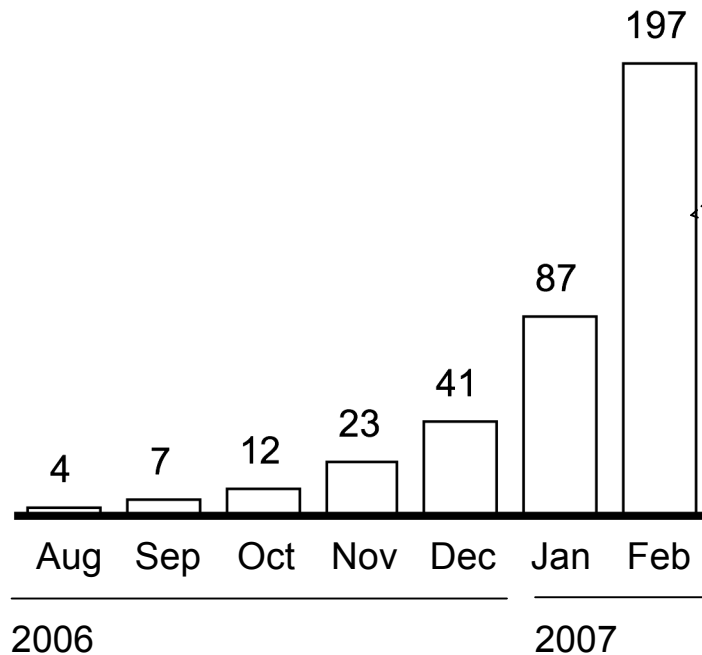# 350K Unique Subscribers in Switzerland

Company founded in May 2005
Launched in June 2006 with 4 channels
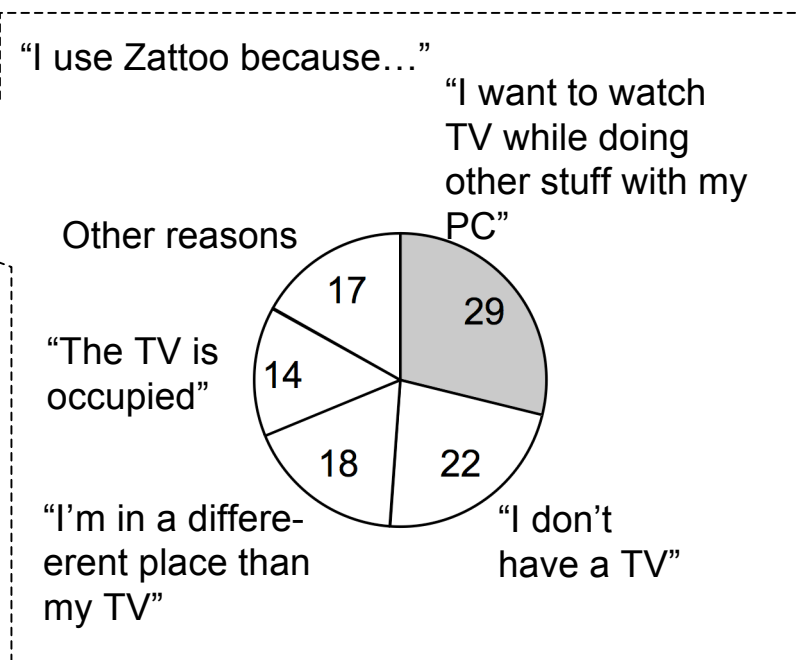
Unique subscribers

Zattoo EXTENDS TV Reach

Swiss Zattoo subscribers
Thousands

Aug	Sep	Oct	Nov	Dec	Jan	Feb
4	7	12	23	41	87	197

2006   2007

Triggering factors driving adoption
Percentage

"I use Zattoo because…"

"I want to watch TV while doing other stuff with my PC" — 29

Other reasons — 17

"The TV is occupied" — 14

"I'm in a different place than my TV" — 18
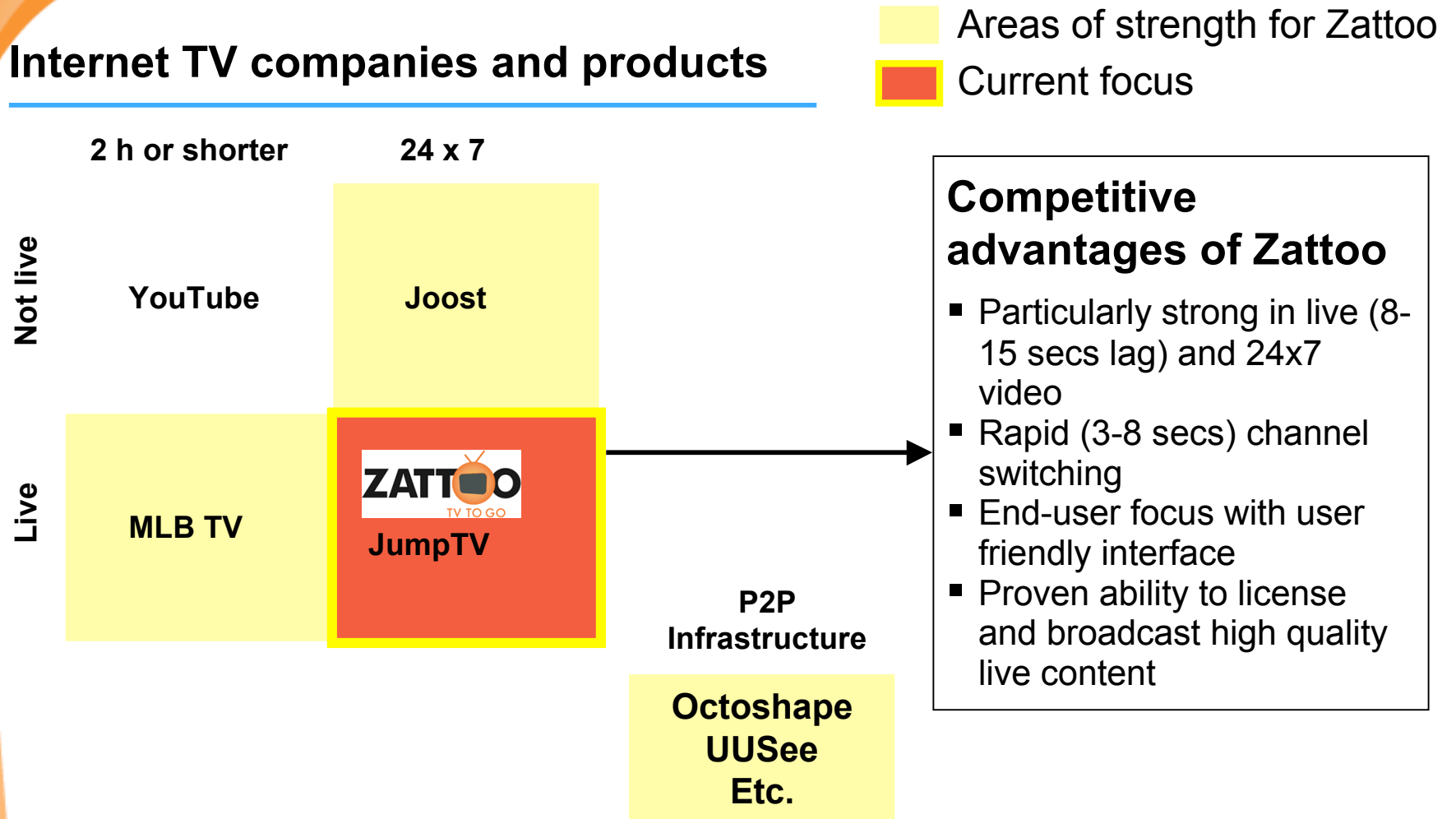
"I don't have a TV" — 22

- 350'000 users in Switzerland (10% of all broadband users) in just over 6 mos.
- Only thanks to word of mouth and media coverage

- 70% uses Zattoo at home
- Zattoo is not a substitute but an addition and an extension to classic TV viewing
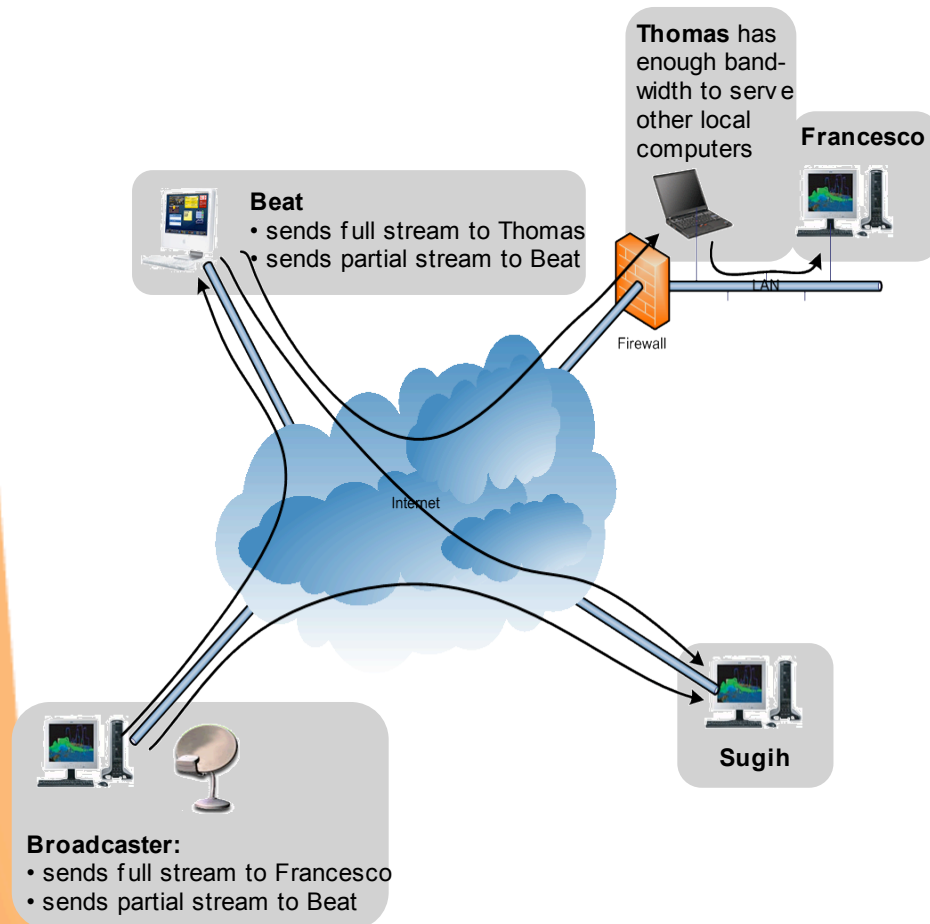- Broadcasters profit from extended reach

Industry Overview

Internet TV companies and products

Areas of strength for Zattoo

Current focus

	2 h or shorter	24 x 7
Not live	YouTube	Joost
Live	MLB TV	ZATTOO TV TO GO / JumpTV

P2P Infrastructure

Octoshape
UUSee
Etc.

Competitive advantages of Zattoo

- Particularly strong in live (8-15 secs lag) and 24x7 video
- Rapid (3-8 secs) channel switching
- End-user focus with user friendly interface
- Proven ability to license and broadcast high quality live content

4

Internet TV Delivery at Low Cost

**Zattoo uses the computing and networking power
of the end users' computers**

Thomas has enough band-width to serve other local computers

Francesco

Beat
• sends full stream to Thomas
• sends partial stream to Beat

Firewall

LAN

Internet

Sugih

Broadcaster:
• sends full stream to Francesco
• sends partial stream to Beat

Key capabilities and their impact

- **Self-expanding network**
  – De-bottlenecks content source; load is smoothly distributed among viewers

- **Traversing firewalls**
  – Works for any broadband connection, even behind firewalls (campus, corporate settings, home)

- **Compensating for bandwidth asymmetry**
  – Reduces subsidy required to keep network operating, while respecting users' low upstream capacity

- **Fault tolerance in the face of peer churn**
  – Prevents loss of service when many peers join or leave a stream at the same time

- **Smoothing out transient congestion**
 – Reduces frame drops and stalls, and improves streaming smoothness

Components of the Zattoo Network

Broadcaster:

- Hooks up a broadcast server with H.264 card to feed live TV into Zattoo
- Recommended bandwidth is 1-10mbps uplink

Backend Services:

- Channel control
- Authentication and DRM license server
- Rendezvous host
- Accounting and Billing
- Statistics collection

Internet
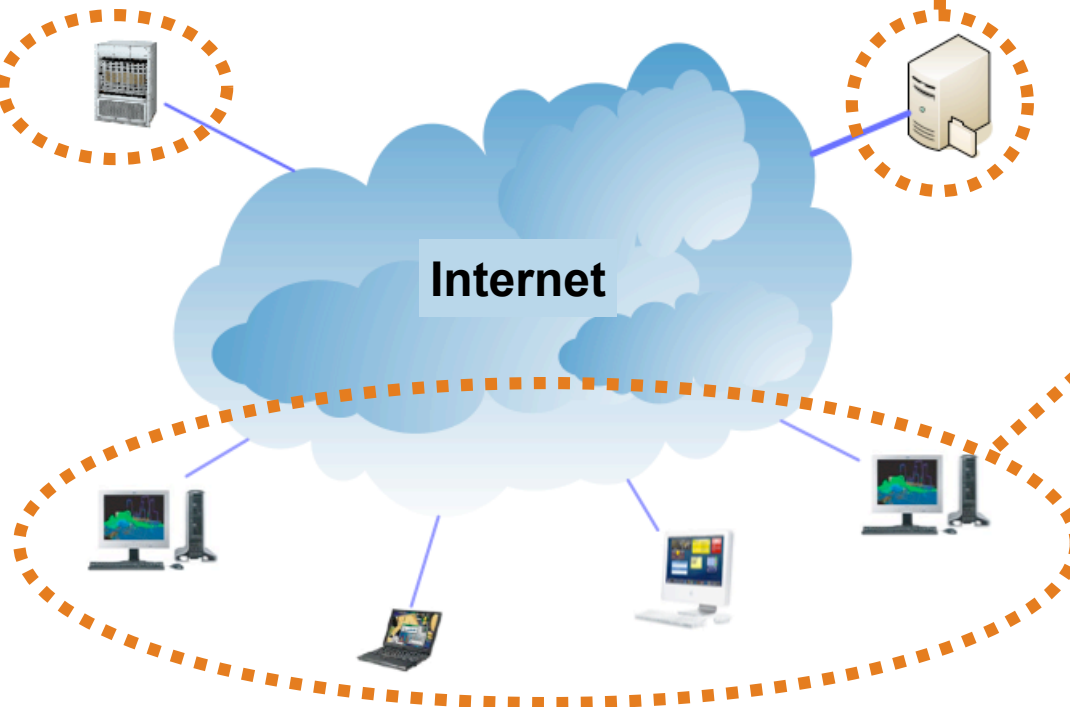
Zattoo Client:

- Standalone app
- Authenticates user and location
- Registers with RH upon startup

To Watch a Channel

Authentication Server

Rendezvous Host

Broadcast Server
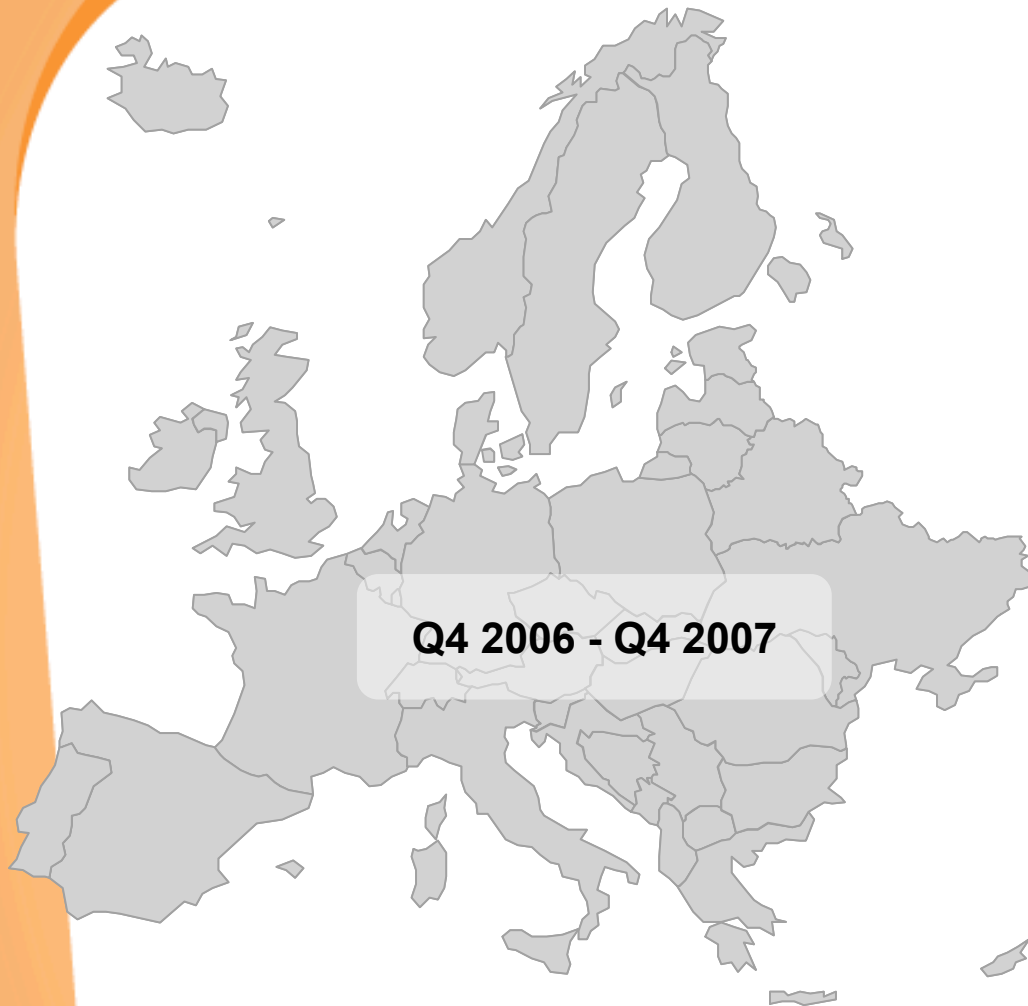
1

2

3

4

5

6

Peers
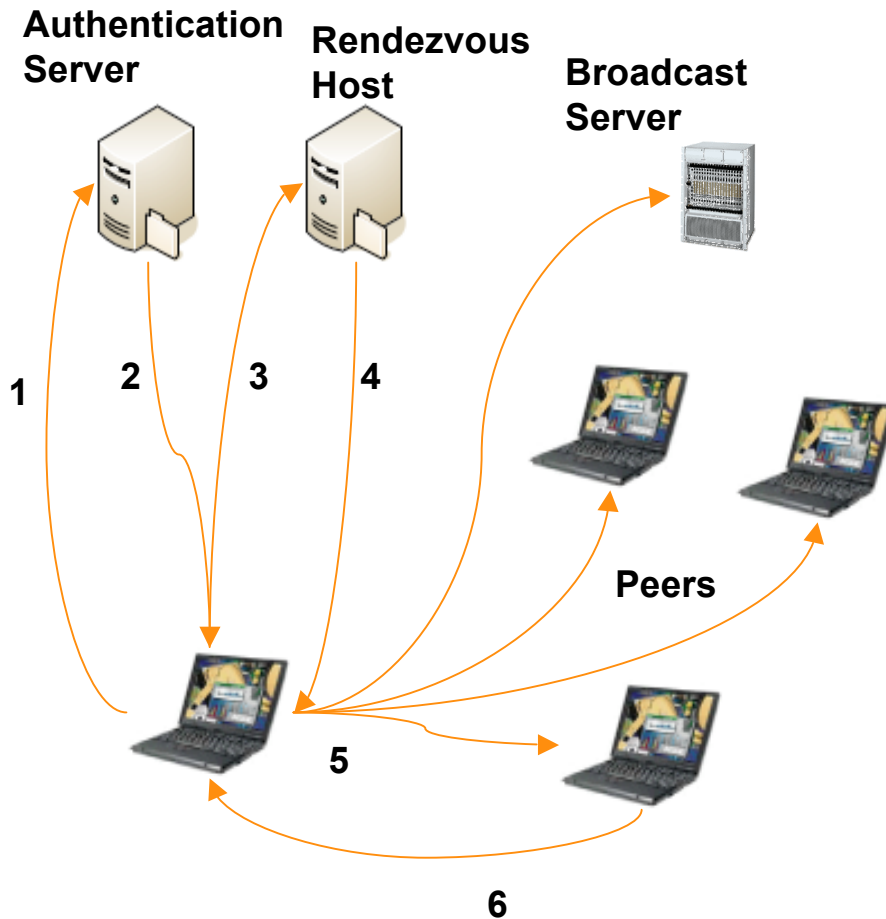
- Per player authentication (steps 1 and 2)
- Per channel DRM checking (steps 3 and 4)
- Tuning in (step 5)
- Getting reception (step 6)

Zattoo Infrastructure
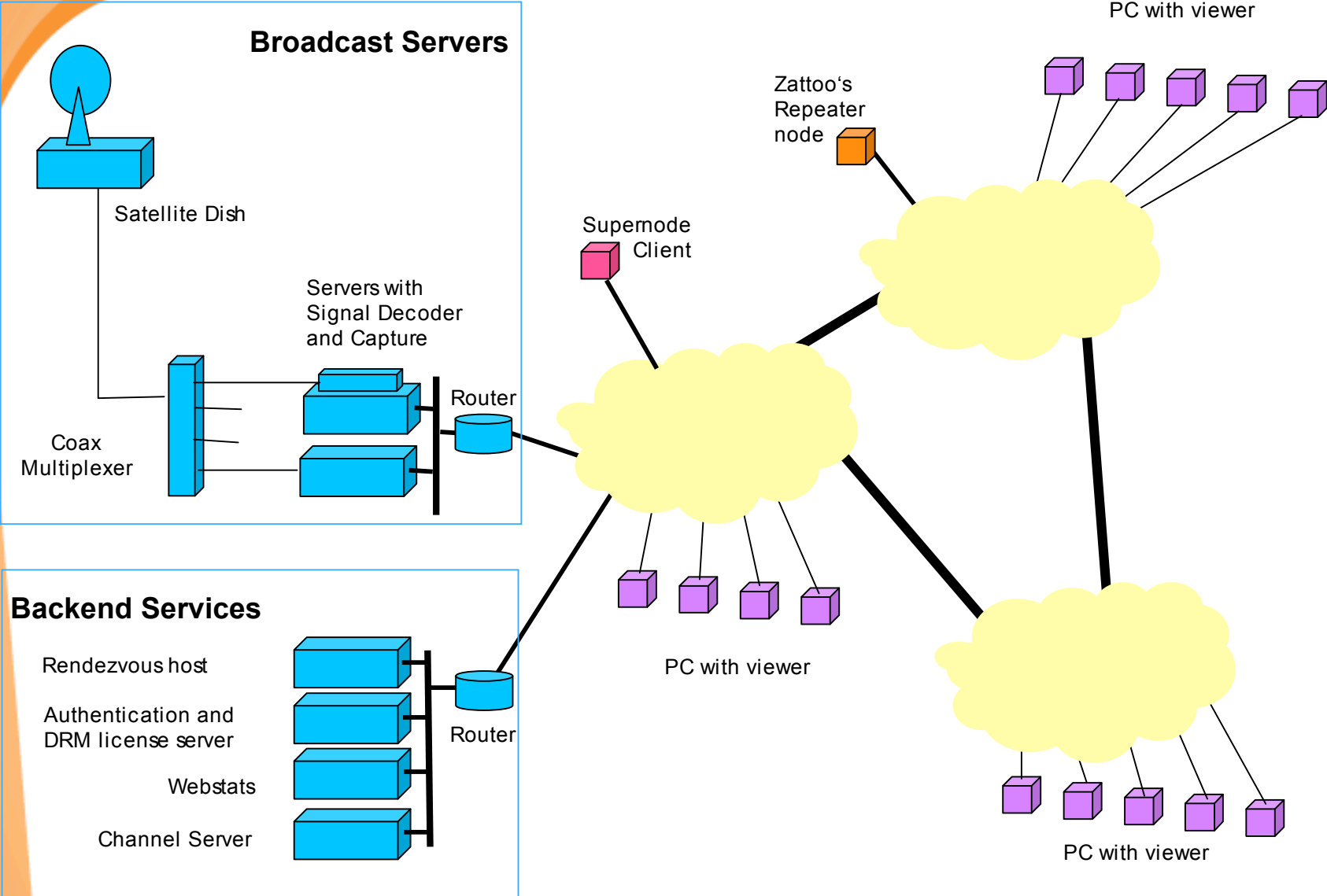
EXPANDING TO EUROPE, NORTH AMERICA AND ASIA

Q4 2006 - Q4 2007

Roadmap and market potential
millions

- **Europe***
  - Planned market entry:
    Q3 2006 - Q4 2007
  - Broadband connections: 59.9

- **North America**
  - Planned market entry:
    Q2 - Q3 2007
  - Broadband connections: 58.4

- **Asia****
  - Planned market entry:
    Q4 2007 - Q1 2008
  - Broadband connections: 37.8

* EU 15
** Japan, South Korea, Australia
Source: OECD Broadband Statistics, December 2005

Servers Shipment and Setup