![JavaOne - Sun's 1997 Worldwide Java Developer Conference logo]

Effortless Updates

Arthur van Hoff
CTO and Founder
Marimba

Internet Trends

◆ Exponential growth

◆ Consumer market

◆ Non-computer devices

◆ Information quality

◆ Available bandwidth

Information, services, communication, or broadcast?

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Java™ and Internet Programming

- ◆ Robust
- ◆ Portable
- ◆ Standard
- ◆ Ubiquitous
- ◆ Powerful

Ubiquitous programming environment for internet applications

Applet/Browser Breakthrough

◆ *Old*: Manual Distribution
- FTP archives
- CD-ROM, floppies
- Manual installation

◆ *New*: Transparent Distribution
- Java enabled browsers with applets
- Transparent delivery of software and data
- Platform independence, security
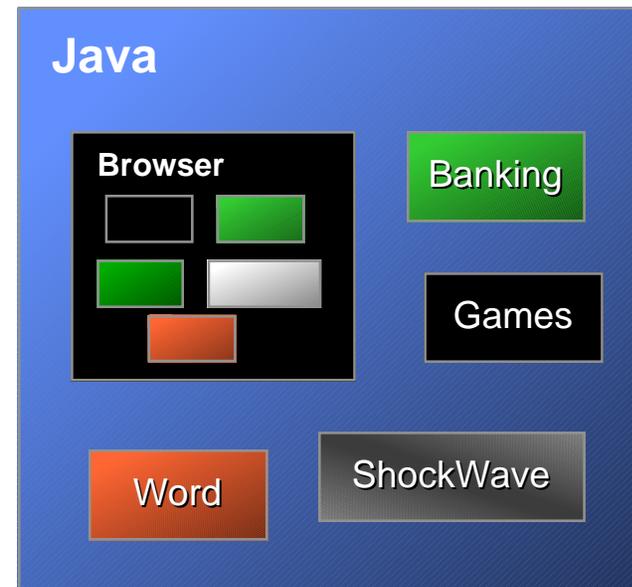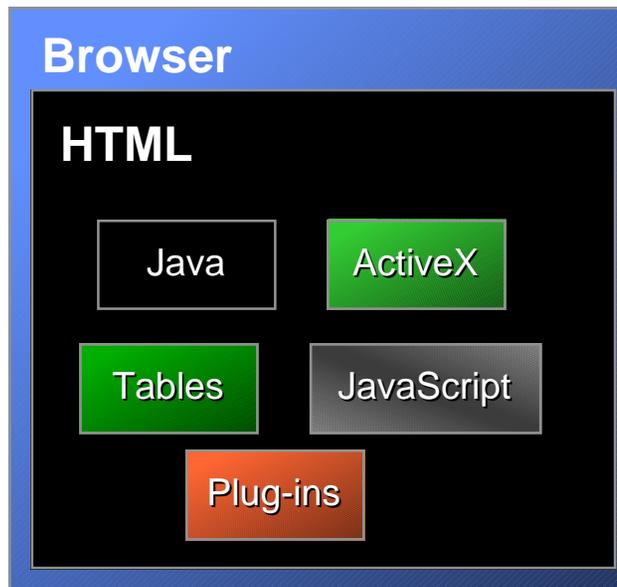- No installation required

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Applet Limitations

- ◆ Constrained user interface
- ◆ Unable to save state
- ◆ Lengthy downloads
- ◆ Repeated down-loading
- ◆ Increased server load
- ◆ Scalability problems

Applets cannot replace applications

Java and HTML

- ◆ HTML is a page description language
- ◆ HTML is NOT a programming language
- ◆ Java on the inside or Java on the outside?

Browser

HTML

Java   ActiveX

Tables   JavaScript

Plug-ins

Java

Browser

Banking

Games

Word   ShockWave

Network-Aware Applications

- ◆ Install automatically
- ◆ Run instantly
- ◆ Update automatically
- ◆ Economical use of bandwidth
- ◆ Visually compelling
- ◆ Easy to build
- ◆ Usage monitoring
- ◆ Personalization

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Castanet

Castanet is a complete solution for the automatic distribution of network-aware applications and data over the internet or intra-net
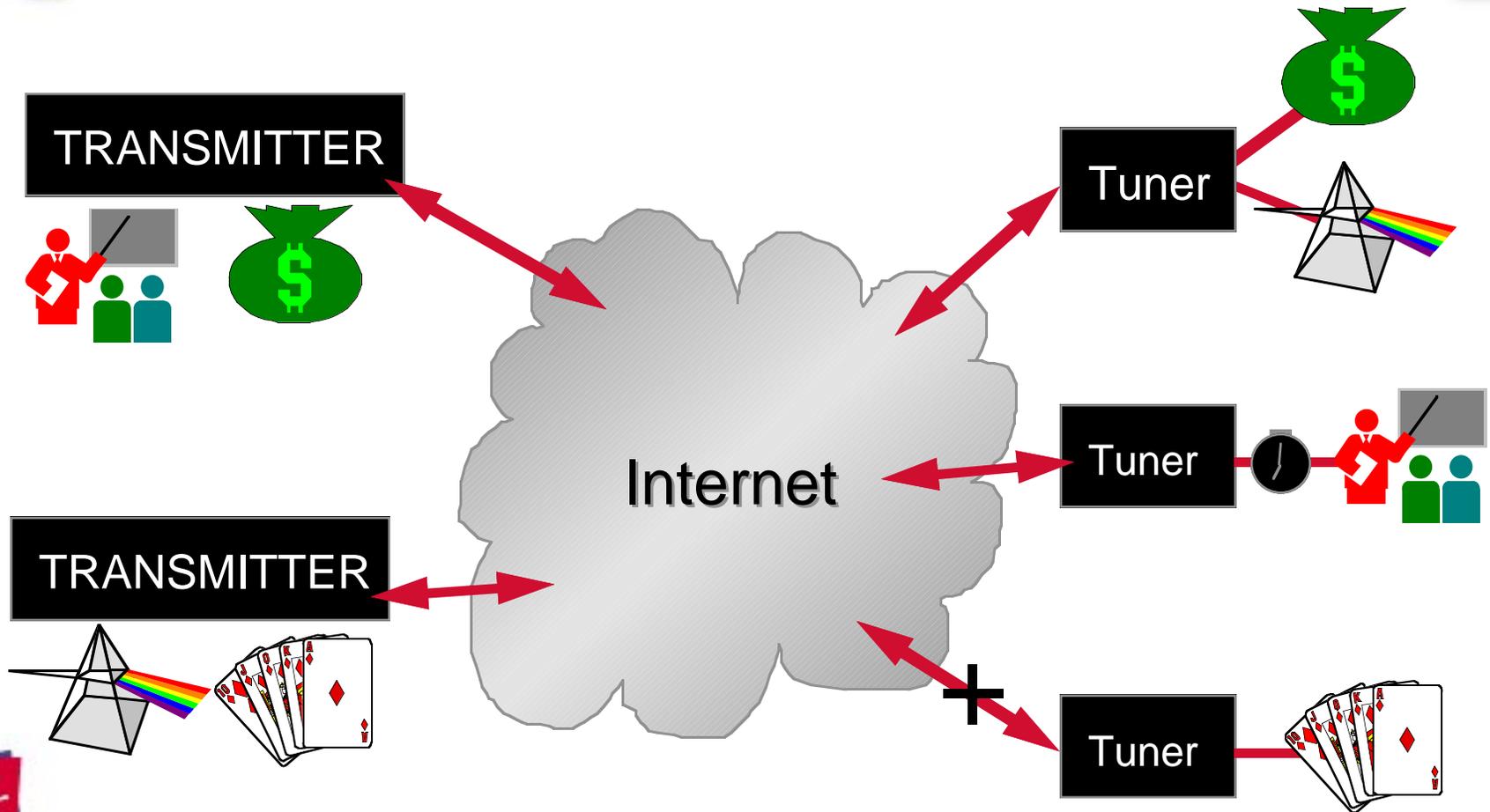
Automatic delivery of code and data

Terminology

- Channel
  - Applet, application, or web-site

- Tuner -- client
  - Channel administration
  - Automatic downloading and installation

- Transmitter -- server
  - Distribute channels to tuners

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Castanet Overview

TRANSMITTER

TRANSMITTER

Internet

Tuner

Tuner

Tuner

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Castanet Features

- ◆ Scaleable distribution
- ◆ Incremental downloads
- ◆ Transactional downloads
- ◆ Transparent to user and developer
- ◆ Monitoring and personalization
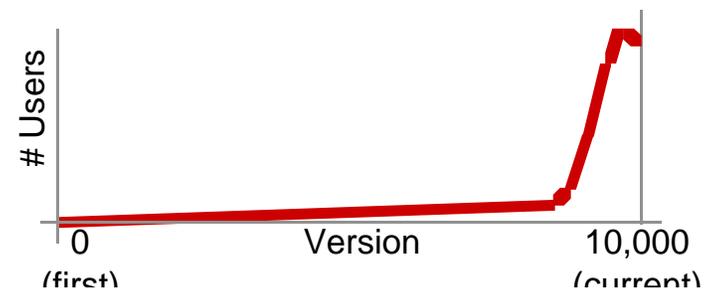- ◆ Web-site mirroring
- ◆ Disconnected use

Castanet Channels

- News, headlines, weather
- Financial, stock quotes
- Entertainment games
- MIS-information systems
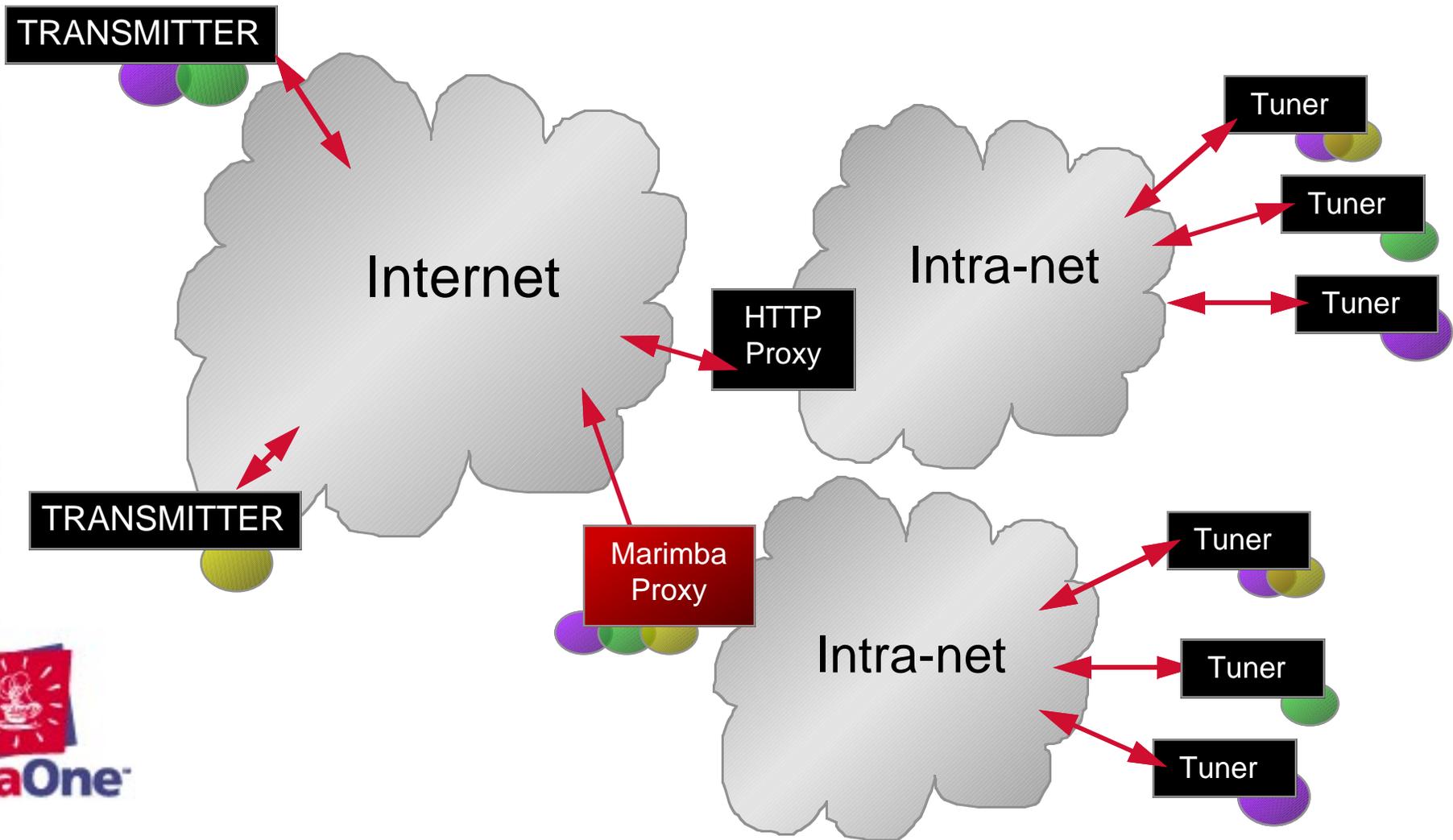- Mission critical applications

Castanet Scalability

◆ 1,000,000 subscribers

◆ 4 updates/hour
  - 100 versions per day
  - 36,500 versions per year

◆ 4 request/hour/subscriber
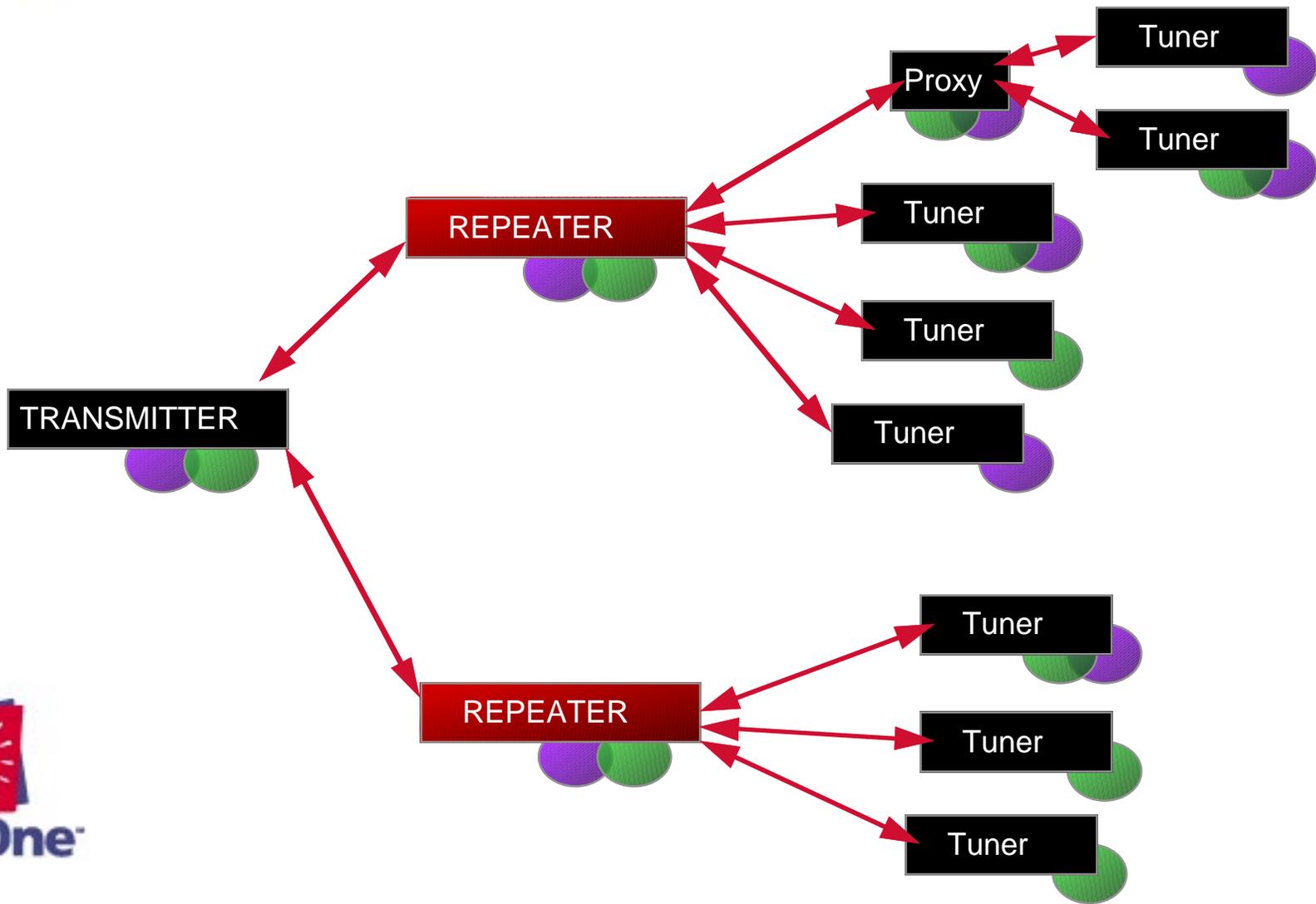 - Max of 4,000,000 requests per hour
  - Max of 1000 requests per second

Incremental Downloads

- ◆ Only differences are downloaded
- ◆ Differences based on MD5 checksums
- ◆ Optimized update request < 100 bytes
- ◆ Intra-file diffs automatically computed

Proxy Overview

Repeater Overview

User Benefits

- ◆ No installation, click and play
- ◆ Simple user model
- ◆ Instant access to channels
- ◆ Tight integration with desktop
- ◆ Large media rich applications
- ◆ Automatic updates of content and code
- ◆ A new experience every day

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Developer Benefits

- Dramatically reduced server load
- Detailed usage monitoring
- Extensible through transmitter plug-ins
- Automatic distribution of code and data
- Ability to save application state
- De-centralization

Development Tools

◆ Works with existing Java tools: IFC, JDBC, Java™ Workshop™, Café, J++, Liquid Motion, FutureTense, Bongo

◆ Most applets can function as a channel without recompiling
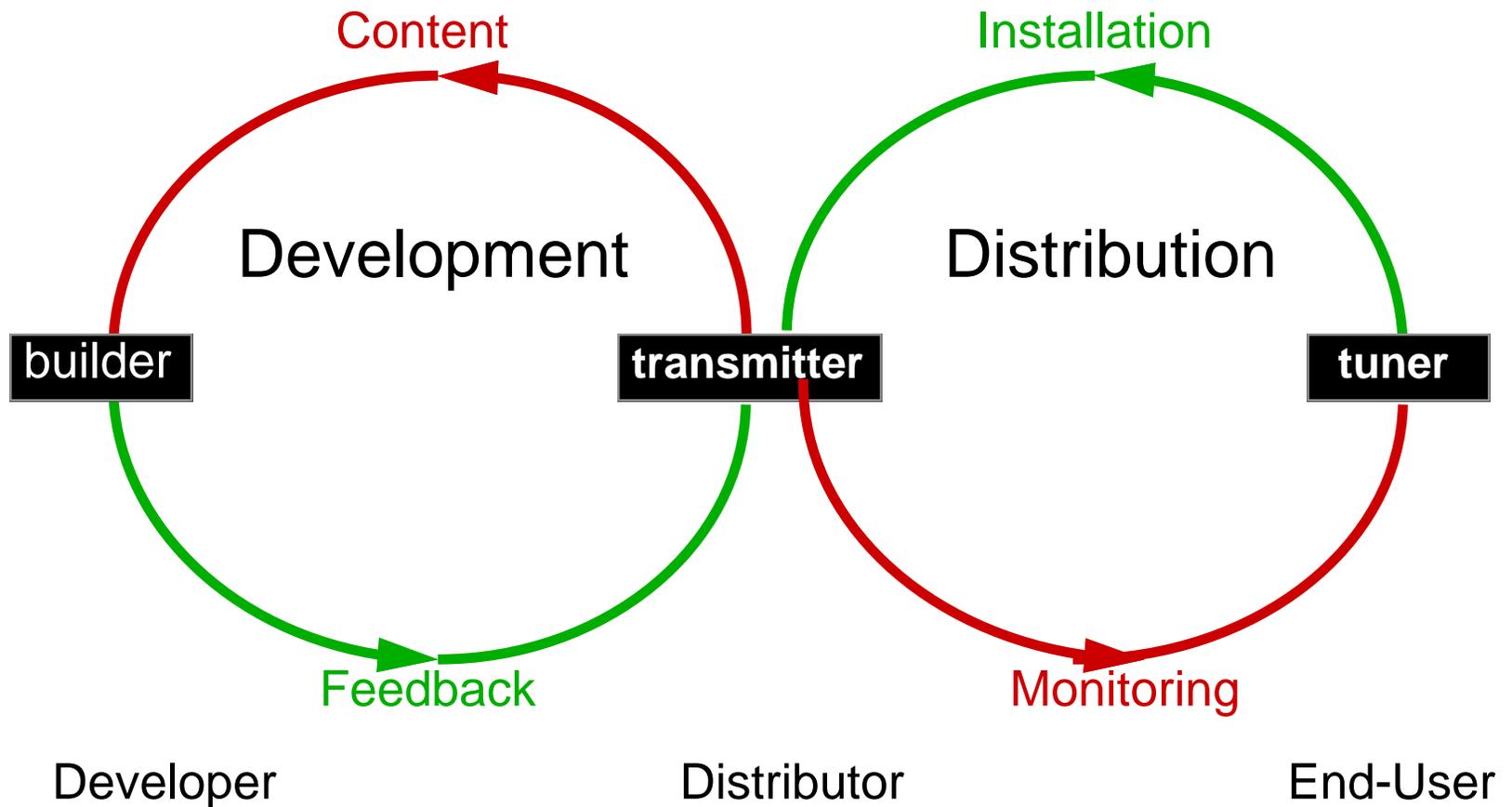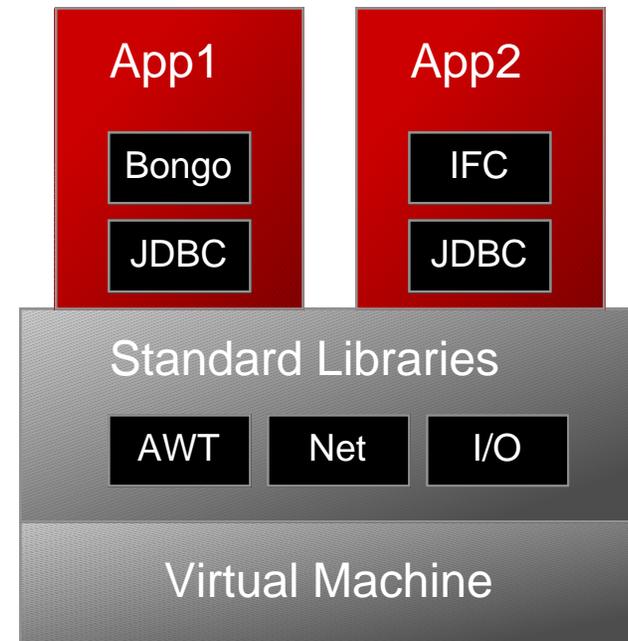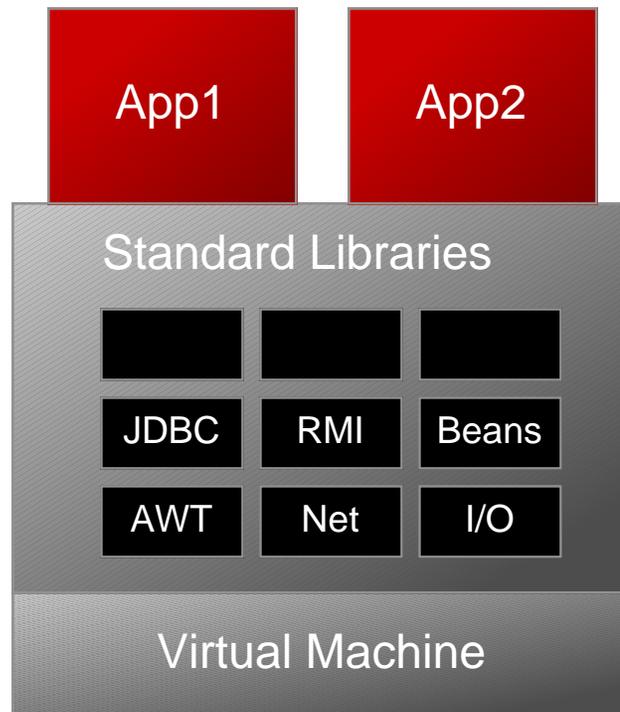
Development Cycle

Traditional Development

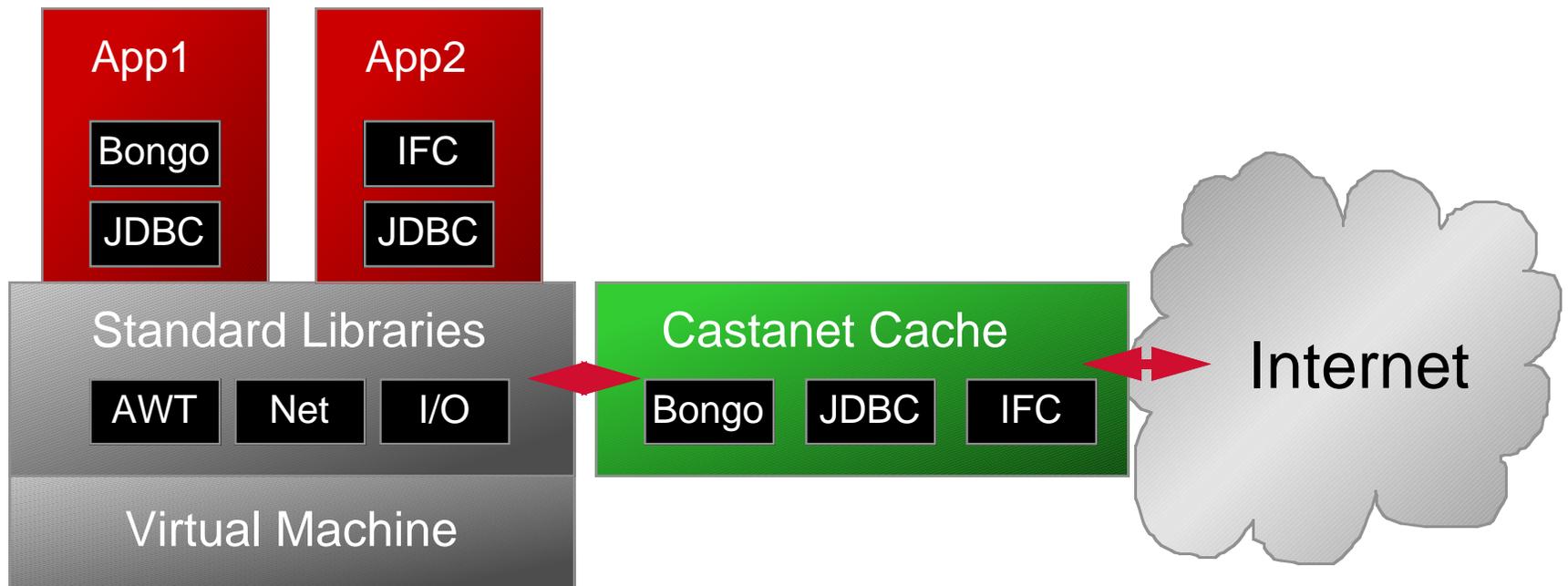| Develop	Deploy

Castanet Development

Develop

Deploy

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Accelerated Release Cycle

Improved Distribution

Automatic Sharing

App1
- Bongo
- JDBC

App2
- IFC
- JDBC

Standard Libraries
- AWT
- Net
- I/O

Virtual Machine

Castanet Cache
- Bongo
- JDBC
- IFC

Internet

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Castanet Summary

- ◆ Automatic software distribution
- ◆ Scalability through de-centralization
- ◆ Reduce the cost of system administration

Castanet Future

- Desktop/OS bundling
- ISP solutions (repeaters, proxies)
- Authentication, trusted data and binaries
- Encryption, secure/private channels
- Billing, integration with payment protocols

Questions?

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