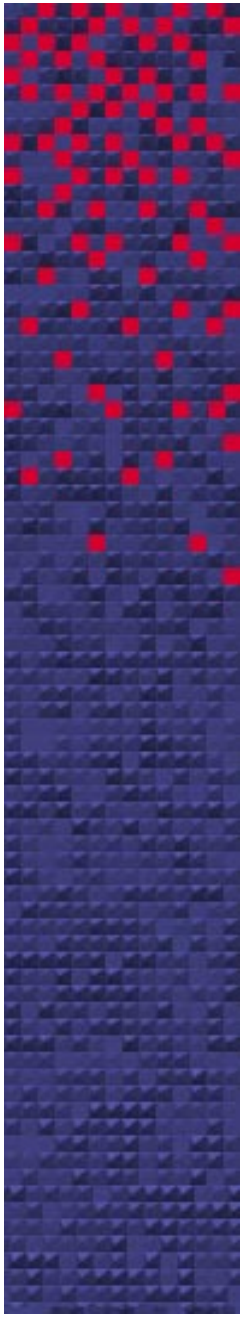
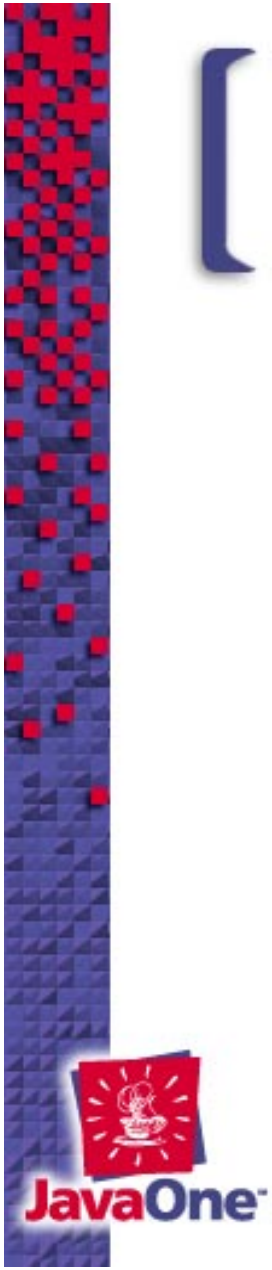


Java™ Media and Communications

"Rich Content, Dynamic Communication"

Today's Speakers

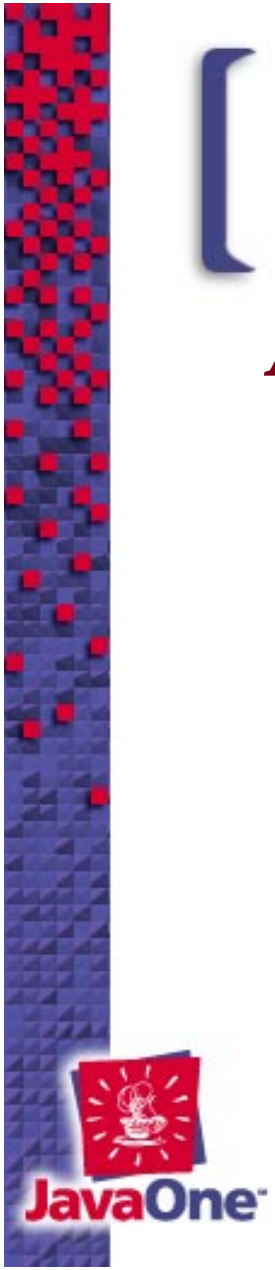
- Vicki Shipkowitz
  - Senior Product Manager,
    JavaSoft, Sun Microsystems, Inc.
- Brent Browning
  - Senior Engineer,
    JavaSoft, Sun Microsystems, Inc.
-



Java Media and Communication APIs

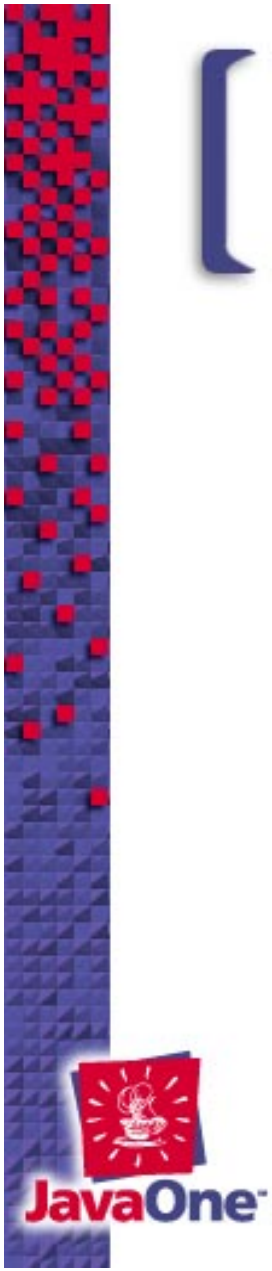
Agenda

- Overview
- Description of each library
- Benefits to the developer and enterprise
- Roadmap
-



Java™ Media and Communication APIs -- What They Are

- Distinct components for:
  - **Specific types of media** (e.g., audio, video, etc.)
  - **Media related activity** (e.g., animation, collaboration, communication, etc.)



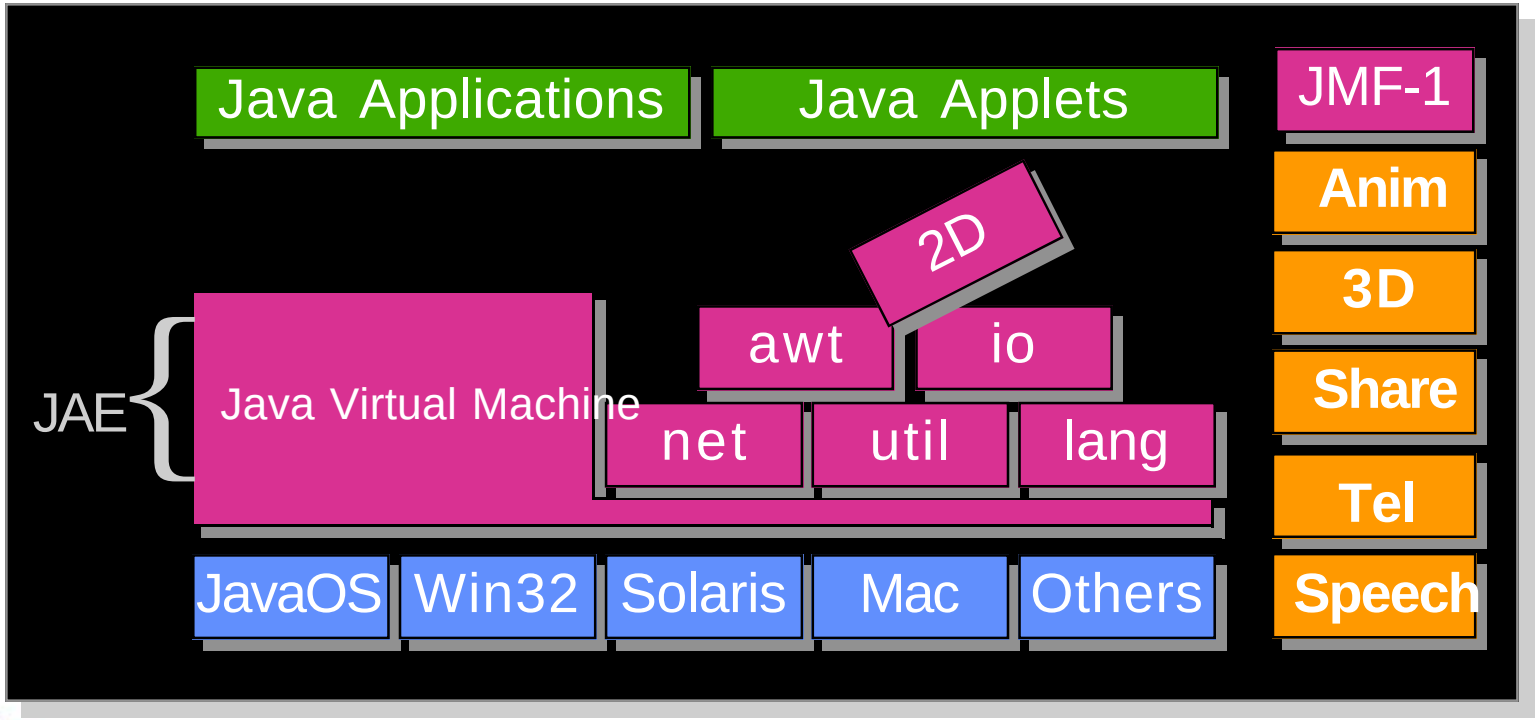
Why We Are Doing Them

- Enhanced media capabilities
- Expanded communications capabilities
- Drive graphics and communication ubiquity

Their Key Characteristics

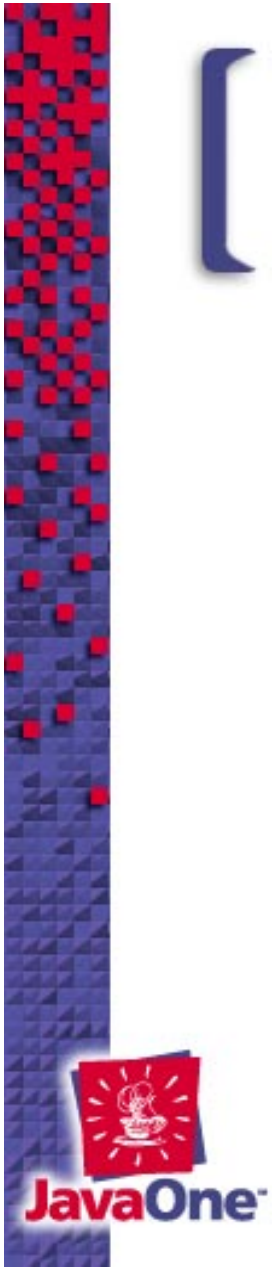
- ***Complete*** -- Comprehensive set of media and communication APIs
- ***Portable*** -- Provides a uniform structure to "*Write once, run everywhere™*"
- ***Lightweight*** -- Small, and therefore universally desirable
- ***Unified*** -- Provides a uniform process for displaying, saving, replaying documents, regardless of device

How They Fit In -- Core and Ext.



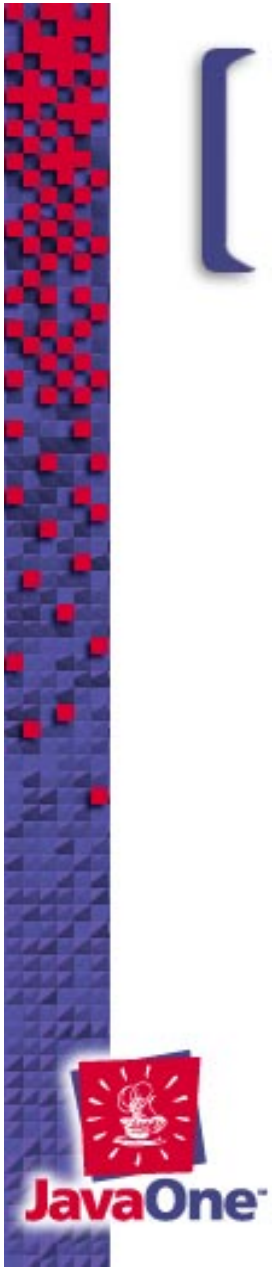
Java Media and Communication APIs

- **Java 2D** -- 2D Graphics and Imaging
- **Java Media Framework** -- Timed Media
- **Java Animation** -- 2D Object Animation
- **Java 3D** -- 3D Graphics and Behavior
- **Java Collaboration** -- Data Sharing
- **Java Telephony** -- Computer Telephony Integration
- **Java Speech** -- Speech Recognition and Synthesis



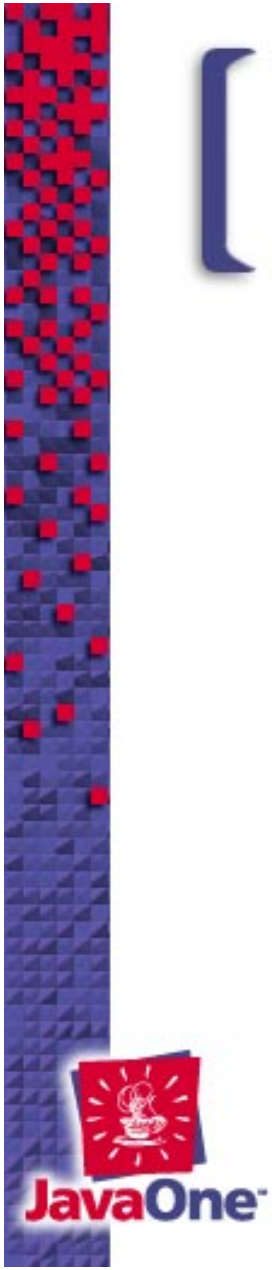
New API Announcements

- **Java Advanced Imaging (JAI)--** Advanced Graphics and Digital Image Processing
- **Java Sound --** Superior Sound Quality; Audio Mixing; Software MIDI Synthesis



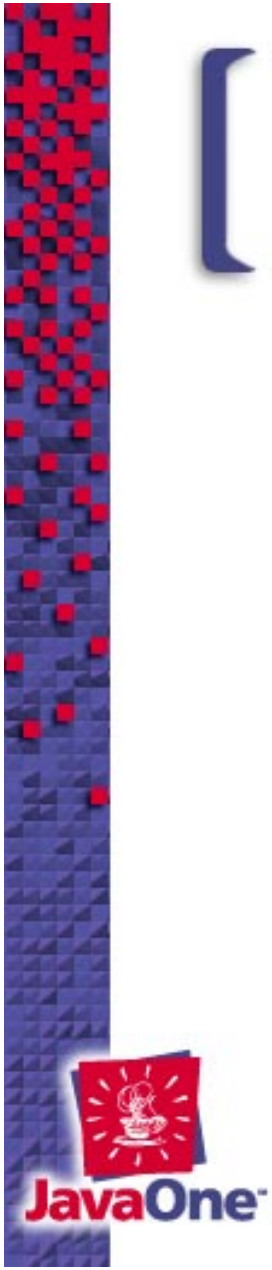
Java 2D API Part of JAE--Introduction

- Extension to java.awt and java.awt.image
  - New features and classes
  - Augment existing classes
- High quality device and resolution independent graphics
  - Augmented color, transformation, composting and alpha
  - Anti-aliased fonts, rich text
  - WYSIWYG
- Single comprehensive rendering model



Java Media Framework API (JMF) -- Introduction

- Player framework for synchronization, control, processing and presentation of compressed streaming and stored timed media including video, audio and MIDI
- Three Phases: Player, Capture/ Create, Conference

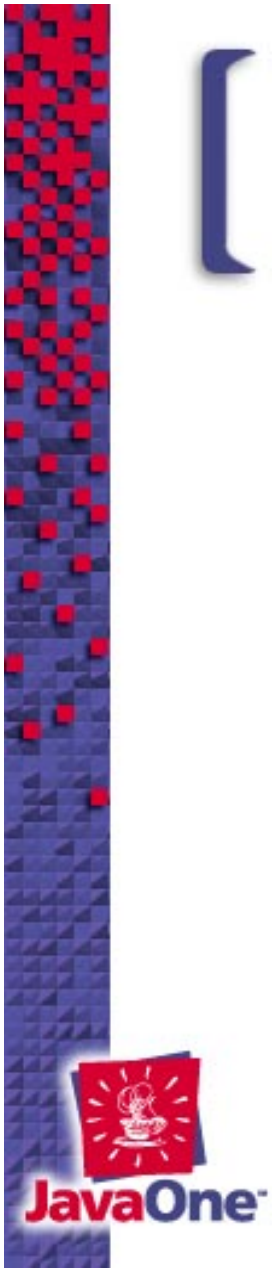


Java Media Framework -- Phases 1,2,3

- **Phase 1: Player**
  - Receive and play audio/video
    - AU, AIFF, WAV, QuickTime, AVI, MPEG-1, JPEG, streaming audio/video (RTP)
  - Enable developers to embed audio/video
- **Phase 2: Capture/Create**
  - Capture and distribute live audio/video
  - Record captured audio/video to standard formats
- **Phase 3: Conference**
  - Provide standards-based conferencing API
  - Provide interoperability with other technologies

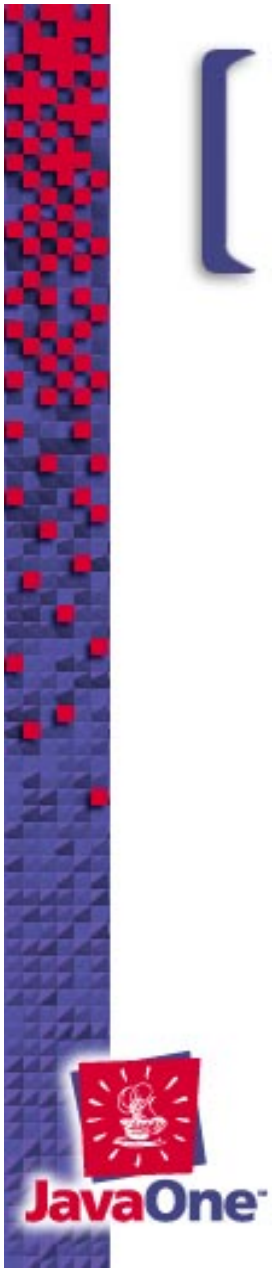
Java Animation API -- Introduction

- Sprites
  - Rendering, compositing, collision detection, effects, and grouping
  - Dynamic sprite rendering
  - Uses Java 2D for image composition
- Scripting
  - Scripts, scores, integration of multiple media types (3D, audio, video)
  - Uses Java Media Framework for timing and synchronization



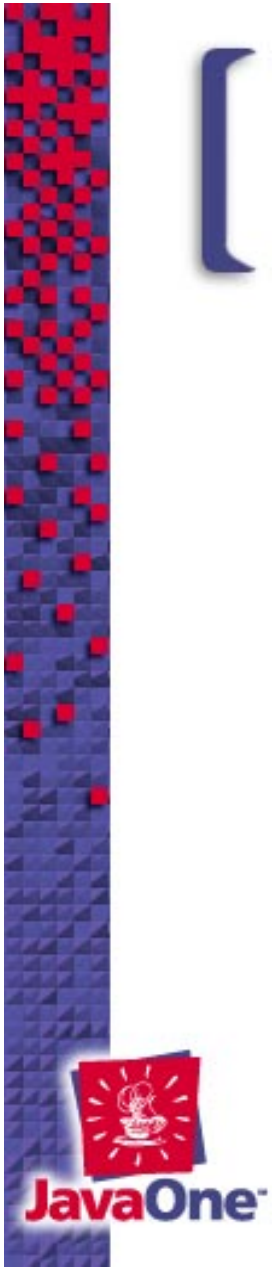
Java 3D API -- Introduction

- Interactive 3D graphics model for building, rendering, and controlling behavior of 3D objects and visual environments
- Simplifies high-performance interactive 3D graphics
  - Higher level of abstraction than OpenGL/XGL/D3D
  - Immediate, retained and compiled-retained 3D



Java 3D API (cont.)

- **Supports wide range of applications**
  - Simple 3D objects on Web pages
  - 3D browsers and authoring tools
  - 3D file format loaders and viewers (e.g., VRML)
  - Large-scale interactive virtual worlds



Java Collaboration API -- Introduction

- Real-time, interactive, multi-user sharing of applications and applets
  - **Phase 1:**
    - Enable development of ***collaboration aware*** applications written in Java to be shared across Java desktops (anticipated sharing)
  - **Phase 2:**
    - Enable ***collaboration unaware*** apps written in Java to be shared across Java desktops

Java Telephony API -- Introduction

- Basic framework for high-level interface-to-call control
  - First-party -- make /receive calls; desktops/PDAs/cell phones
  - Third-party -- includes automated call distribution center hand off

Java Speech API -- Introduction

- Speech Recognition
  - Process audio input containing speech by converting it to text
- Speech Synthesis
  - Produces synthetic speech from text generated by an application or applet
  - Often referred to as “text-to-speech”

Java Advanced Imaging API -- Introduction

- Extends Java AWT and Java 2D
  - Extension to JAE
- Advanced Image Processing Capability
  - Easier and faster handling of large images
    - Tiling
  - Deferred execution
  - Supports threading

Java Sound API -- Introduction

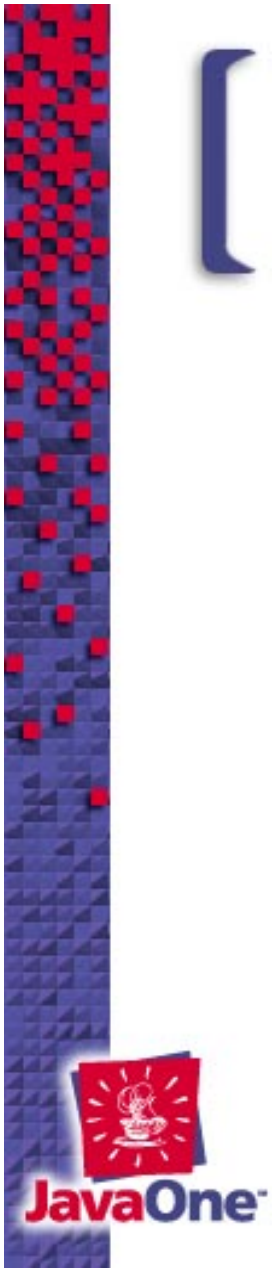
- High-quality sound effects
- Software MIDI synthesizer
- Sample playback device
- Software sound mixer
  - 32 voice, stereo 16 bit mixer

Benefits to Developers

- Creates more dynamic, rich applications
- Reach a broad audience running on multiple platforms
- Increase time-to-market
- Utilize a cost-effective means of distribution

Benefits Within the Enterprise

- Time and cost savings
  - Reuse of media
  - Collaborative working environment
- Meet customer expectations and reach target audiences
  - Effective marketing materials



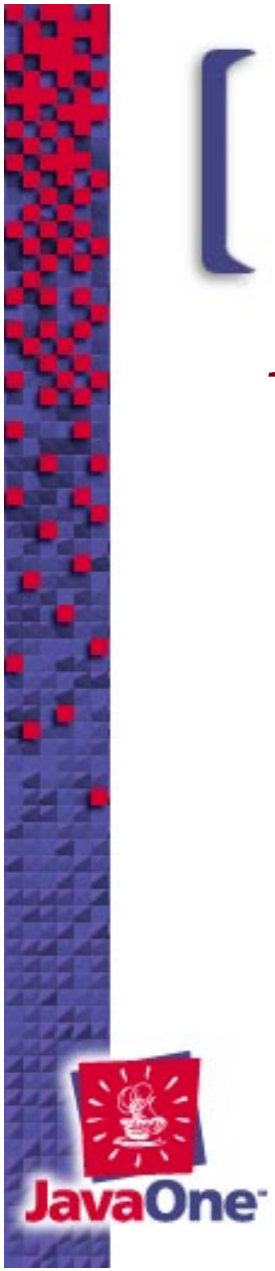
Benefits Within the Enterprise (cont.)

- Consistency of campaign and multimarketing
  - Synergy in advertising
- Enhanced image and market position
  - Considered necessity for competitive advantage

Uses Within Enterprise

Intranet

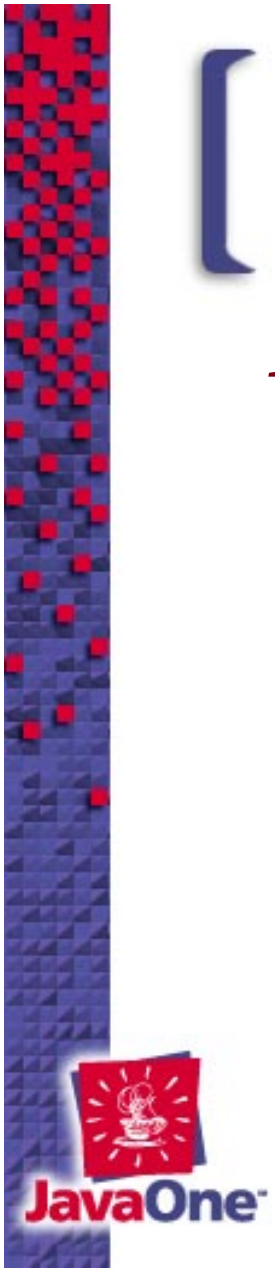
- Media-rich web pages
  - Product training with video clips
  - Access to corporate information
  - Animated presentations and multimedia kiosks



Uses Within Enterprise (cont.)

Intranet

- Employee communications and training
  - Quarterly CEO or HR broadcast
  - Live talks, chat rooms and technical training
- Conferencing and collaboration
  - Help desk -- “How do I sort my mail?”
  - Workgroups -- “Let’s look at the budget together”



Uses Within Enterprise (cont.)

Internet

- Media rich web pages
  - Advertising
  - Product demos
  - On-line product catalogues

Uses Within Enterprise (cont.)

Internet

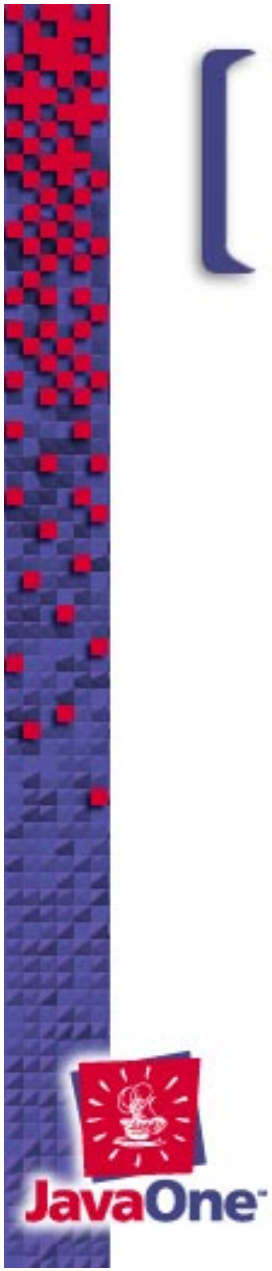
- **Cybercasts and customer training**
  - Live product launches
  - Classes over the Internet
  - Live talks, chat rooms, and technical training sessions
- **Customer Support**
  - CMS/Call centers

Target Release Dates: Phase 1

- API
  - Java 2D (included with next version of JDK™)
  - Java Media Framework: Phase 1 Player
  - Java Sound
  - Java Telephony
- Target Release Dates
  - Beta Spec: Q1’97-Q2’97
  - Beta Implementation: Q2’97
  - FCS Implementation: Q3’97

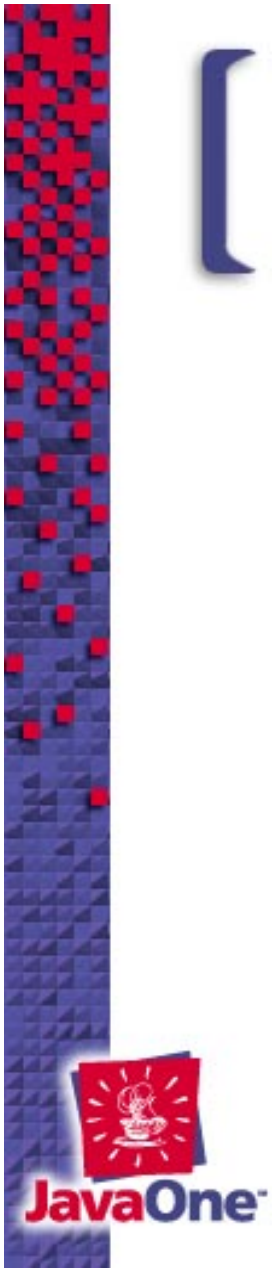
Target Release Dates: Phase 2

- APIs
  - Java Media Framework: Capture/Create
  - Java Collaboration: Collaboration Aware Apps
  - Java Speech
  - Java 3D
  - Java Animation
- Target Release Dates:
  - Beta Spec: Q3’97
  - Beta Implementation: Q3’97
  - FCS Implementation: Q4’97



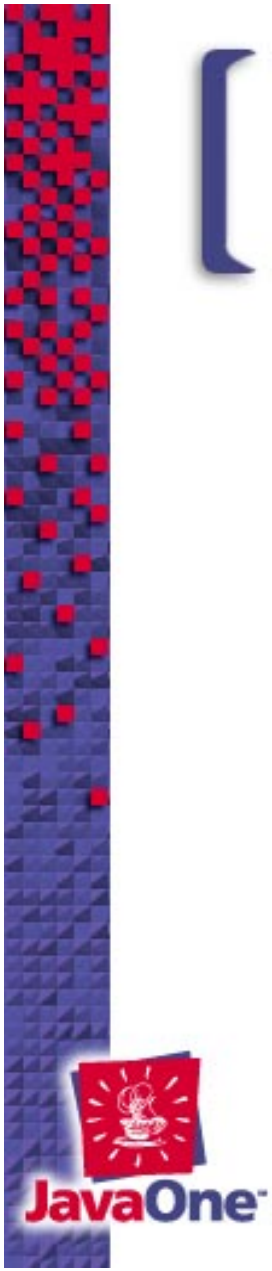
Target Release Dates: Phase 3

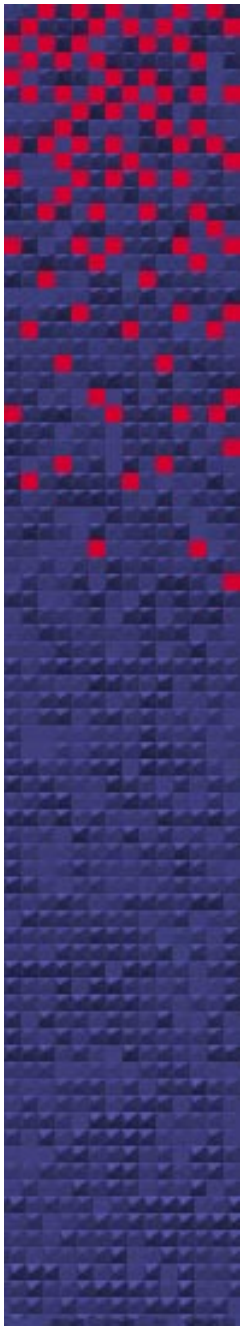
- APIs
  - Java Media Framework: Conferencing
  - Java Collaboration: Sharing of collaboration-unaware apps
  - Java Advanced Imaging
- Target Release Dates
  - Spec: Q4’97
  - Early Access: TBD
  - First Release: TBD



For More Information

- `www.javasoft.com`





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