



Java™

Ease-of-Development, J2SE™ 5.0 “Tiger” and J2EE™ 5.0

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Agenda

- Java™ Status
- “Ease of-Development” theme
- Highlights on J2SE™ 5.0 “Tiger”
- Early plans for J2EE™ 5.0 Release

Java™ Platform History

- Java platform was based on several core ideas:
 - A simple, clean, core language
 - Strong typing (enforced by JVM)
 - No naked pointers
 - Automatic memory management (“garbage collection”)
 - Security sandbox (enforced by JVM)
 - Isolation from instruction set and OS details
- Consciously targeted at:
 - Robustness, security, maintainability
 - An environment for writing large maintainable apps
 - Emphasized readability over writability

Java™ Platform Status

- Platform offers a very rich and wide API set
 - From cell phones and PDAs (J2ME™)
 - To desktop GUIs (AWT and Swing)
 - To web tier (JSP and servlets)
 - To transaction tier (EJB)
- Healthy competition between JVM vendors
 - Very high-performance compilation & execution
 - Scalability from cell phones to very large SMP systems

The road to ten million developers...

- Java™ platform is perceived as powerful
 - Robust, reliable, scalable, secure, distributed
 - But sometimes “powerful” => “complex”
 - Big challenge is to improve simplicity
 - Make it easier to get started
 - Make it easier to write small apps
- => Ease-of-Development theme**
- Shift of focus from “power” to “simplicity”
- This will grow platform adoption
 - But will help existing developers too!

J2SE™ 5.0 “Tiger”



There's lots of great stuff in Tiger

JMX BigDecimal updates z-ordering jstat jps
RMI dynamic proxies **Generics** Gnome Skins
JDBC Rowsets **Autoboxing** extended for loop
faster startup jconsole printf JVM sharing
synth L&F SAX 2.0 **Concurrency utilities**
Unicode Surrogates importing constants OpenGL
IP reachability Ocean L&F SASL performance XAWT
unsynchronized StringBuffer improved cookie support
XML Schema apt DOM 3 JVM Monitoring
Stack trace API fatal error handlers Remote JMX improved footprint
varargs swing printing AMD64 Enumerated types
XDnD Packed JARs metadata OCSP
scanning **JVMPI Profiling** New Memory Model
performance ergonomics

And lots more...

Tiger Themes

- Quality: Stability, Robustness, Compatibility!
—Customers need rock solid releases
- Performance and Scalability
—“From desktop to data center”
- Ease of Development
- Monitoring and Management
- Desktop Client

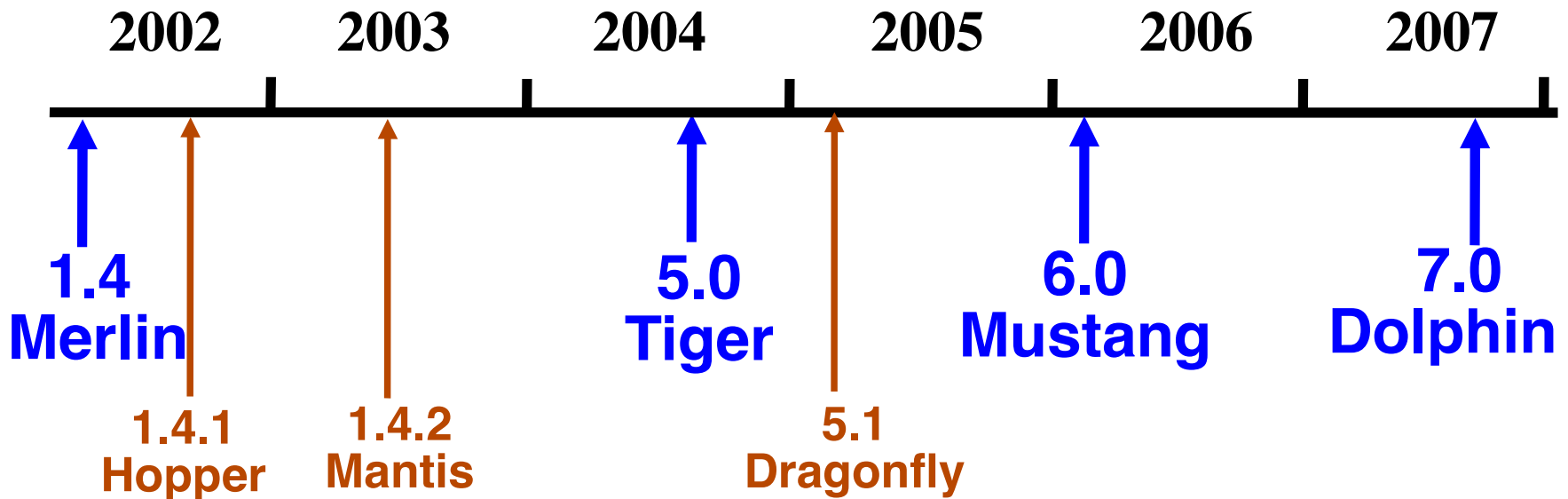
EoD in Tiger

- First big Java™ language updates since '95
 - Generics
 - Enumerated types
 - Extended for loop
 - Metadata annotations
 - Autoboxing
 - Varargs

JSR-175 Java™ Language Metadata

- Java platform has long history of marker conventions:
 - getFoo/setFoo to define a JavaBeans™ property
 - Various naming patterns in EJBs
 - Inheriting from “serializable” interface
- These markers are used by tools/libraries
 - To reduce the need for explicit coding
- Now turning into explicit language feature
 - JSR-175 “Java language metadata”
 - Introduces explicit annotation mechanism
 - To support more declarative programming

J2SE™ Roadmap



- Gap between 1.4 and 5.0 was too long
- Plan is to (slightly) reduce size of releases
 - And (slightly) increase frequency
 - Get back into 18 month cycle for new features

J2EE™ 5.0

J2EE™ 1.4 Release

- Major update of J2EE™ platform
- Went final in November 2003
- Fully integrates SOAP Web Services
 - In web tier and in EJB tier
 - Full support for WS-I Basic Profile
- Also many updates to existing components
 - EJB 2.1, JSP 2.0, Servlet 2.4

J2EE™ 5.0 Release

- EoD is the main theme for J2EE™ 5.0 Release
 - Goal is to greatly grow J2EE developer base
 - Some updates to specific technologies
 - But also some pervasive changes
- Targeted at second half of 2005.
- **WARNING:** This is all tentative, subject to debates within the JCP expert groups!

Ease-of-Development Approach

- Simplify common scenarios
 - Remove boilerplate code
 - Rely on defaults whenever possible
 - Drastically reduce deployment descriptors
- Add utility classes / helpers
- Exploit new Tiger features
 - Especially JSR-175 metadata annotations

JavaServer™ Faces

- JavaServer™ Faces is JSP GUI toolkit
 - Java GUI components run in web server
 - Render to HTML
 - HTML GUI runs in browser
- Designed to enable great GUI design tools
- Already shipping unbundled on J2EE 1.4
- Will be included in J2EE 5.0

EJB 3.0

- Key focus on reducing EJB complexity
- Make it easier to define EJBs
 - They look much more like normal classes
 - Remove need for separate interfaces/classes
 - Simplify mapping from EJBs to SQL
- Uses metadata to annotate EJBs
 - With defaults for common cases
 - Should supersede deployment descriptor

Web Services: JAX-RPC 2.0

- JAX-RPC is Java APIs for Web Services
- JAX-RPC 2.0 ads many new features
 - SOAP 1.2, WSDL 2.0, WS-I.next, ...
 - Improved XML<->Java mapping, ...
- But also strong Ease-of-Development focus
 - Use metadata to define JAX-RPC servers
 - Simplify both client and server development

JDBC 4.0

- JDBC 4.0 has dual focus:
- Support latest SQL standards
- Big focus on Ease-of-Development
 - Automatic driver management
 - Simplified connection creation
 - Easy syntax (metadata) for simple queries
 - But still focused on SQL

New Java™ Language Work

- Java language has a conscious center
 - A balance of simplicity + power
 - Transparency: what you get is what you see
 - Maintainability is more important than writability
 - A language suitable for multi-million line apps
- We want to keep that clear center
 - Not futz and fiddle and destroy our strengths
- Tiger language changes were carefully selected
 - Analyzed, debated, selected, matured, 1998-2004
- We plan a few more in Dolphin (7.0)
 - But with very careful thought and review

Other languages for Java platform

- Java™ platform is more than the Java language
- There are lots of great scripting languages
 - JSR-232 supports scripting, especially PHP
- “Groovy” language (JSR-241) is very cool
 - More dynamic, more script like, good for small apps
- Many other innovative language ideas
 - Various language ideas in the Java community
 - We have a few ideas of our own
 - Expect to see various experimentation
 - Ultimately some will go into JCP

Summary

- J2SE™ 1.4 and J2EE™ 1.4 are available now
 - Widely adopted and deployed
 - Full, integrated support for XML & Web Services
- J2SE 5.0 is coming this fall
 - Many new features
 - Including selected Java™ language updates
- J2EE 5.0 is under development
 - Makes existing J2EE ideas easier to use



Java™

Q & A