

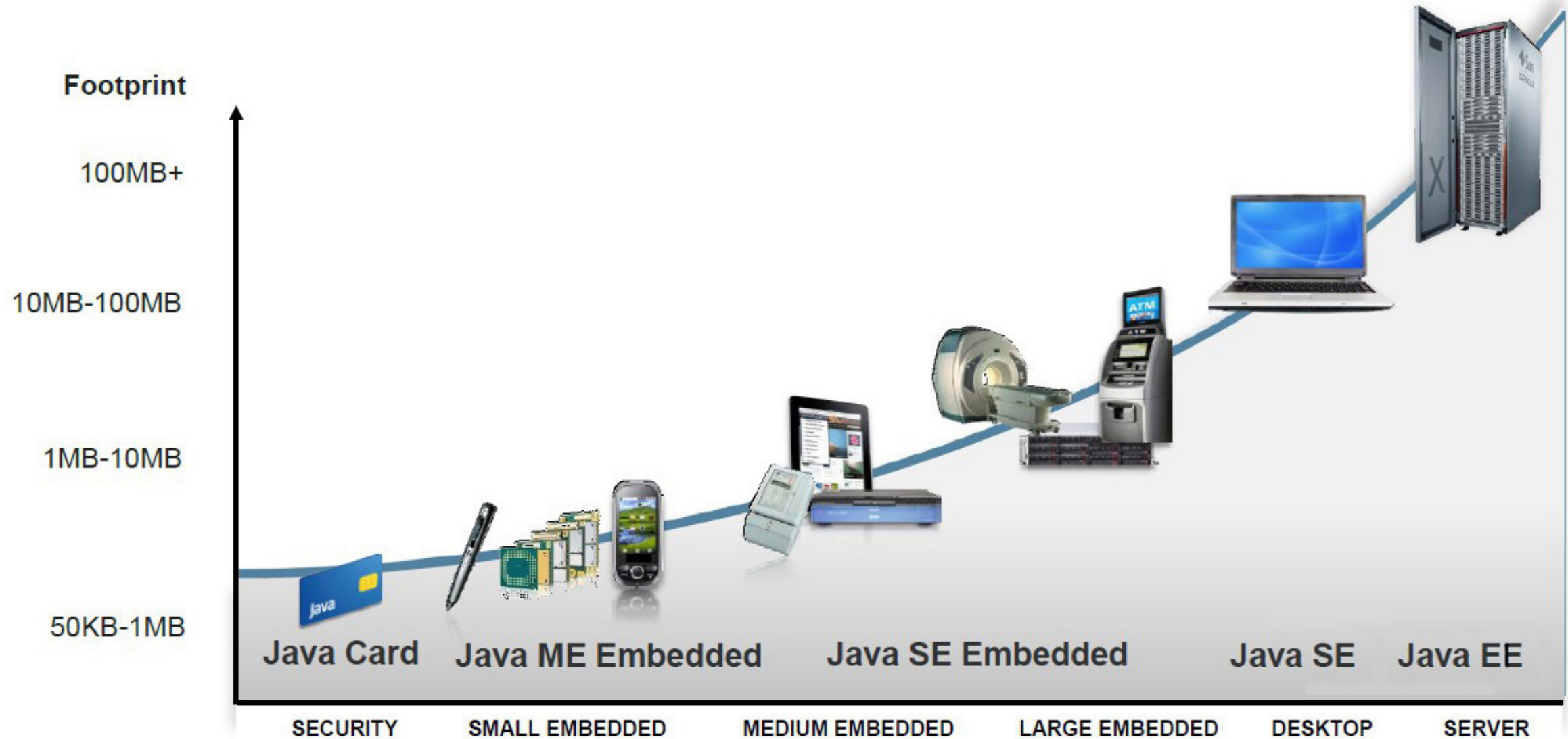
Introduction to the JCP

Patrick Curran
Java Community Process Chair
May 2015

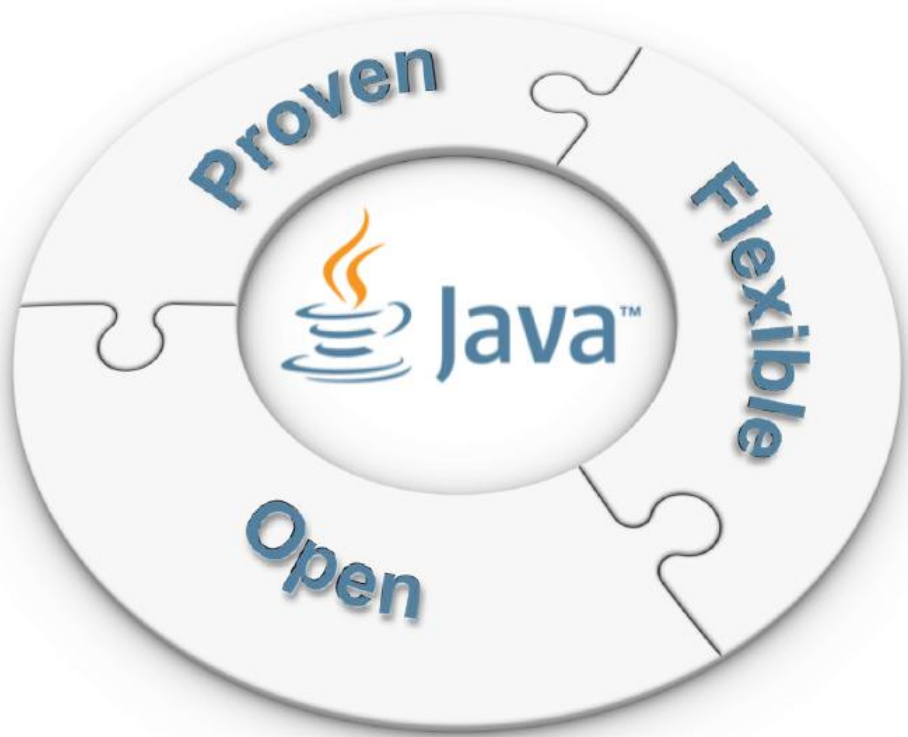




Scalable

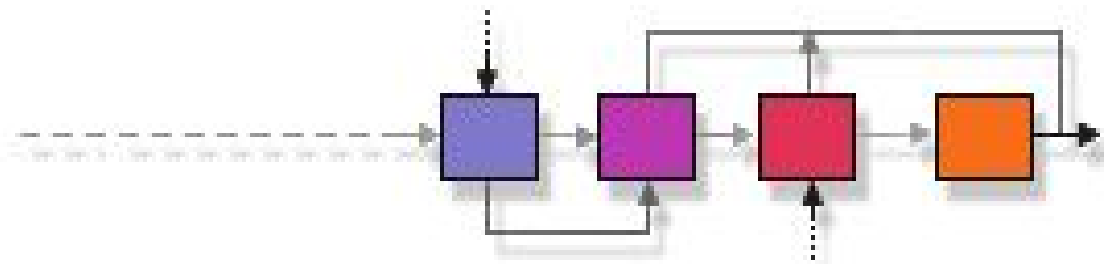


Ubiquitous



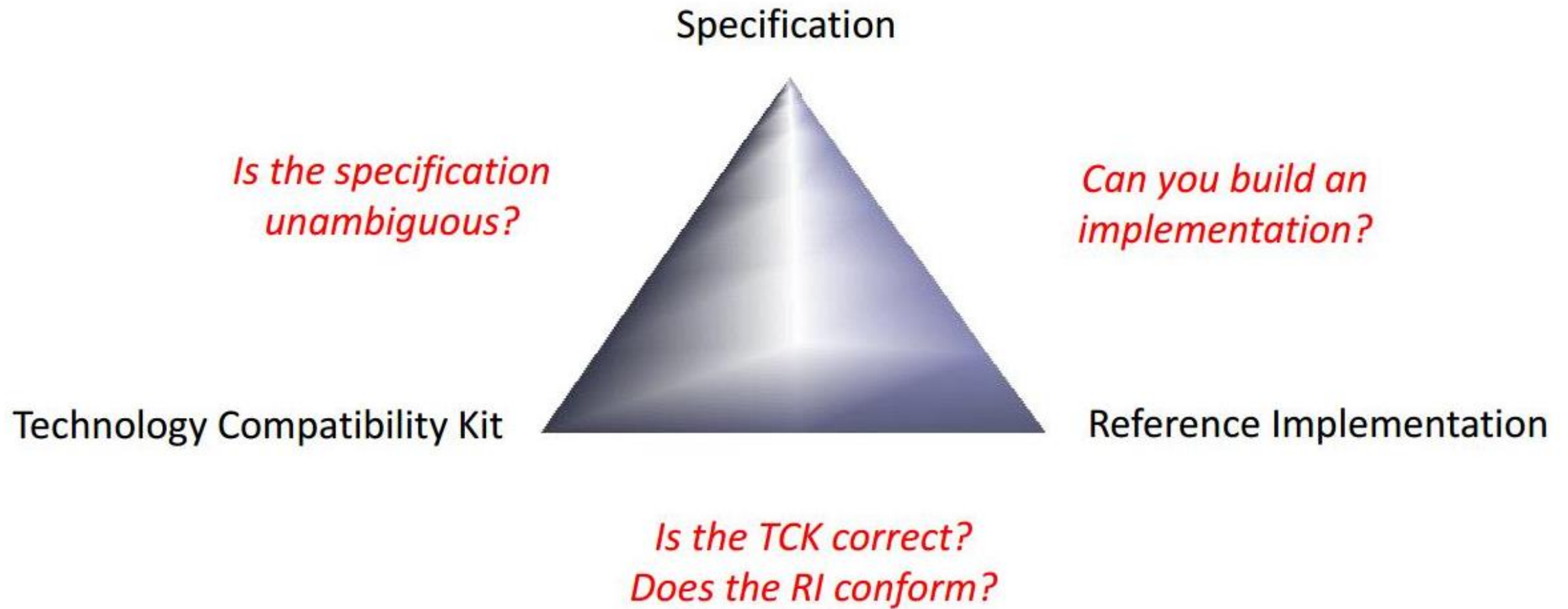
- 9 Million Java developers worldwide
- 3 Billion mobile phones run Java
- #1 Choice for developers
- #1 Development platform
- 100% of Blu-Ray players include Java
- 97% of enterprise desktops run Java
- 89% of desktops in USA run Java
- 7 Billion Java Cards sold
- 5 Billion Java Cards in use
- 115 Million TV devices run Java

Collaboratively Developed



Community Development of
Java Technology Specifications

Compatible



History

- 1995: Sun Microsystems develops Java.
- 2000: Sun opens up the development process to its competitors, creating the Java Community Process.
- 2006: Sun open-sources Java SE and Java EE.
- 2007: Sun goes into financial decline; Java stagnates.
- **2010**: Oracle acquires Sun and becomes the steward of Java.

2011 - Present Day

Oracle infuses energy and funding into Java and the JCP, resulting in:



- New revisions of each of the three platforms: Java SE, Java ME, Java EE
- “JCP.Next” reforms to improve the way the Process operates
- Increased participation and new initiatives from Java User Groups

Oracle as Java's Steward

- Oracle recognizes the great value of Java – to itself as well as to its allies and competitors.
- The value is derived from the open, collaborative, standards-based process through which Java is developed and the vibrant developer community that this process fosters.
 - A proprietary platform could not have succeeded as Java has
 - Java is everywhere
- Oracle's support and promotion of Java benefits everyone.

Working Together



The Java Community Process

- Java specifications (JSRs) are developed collaboratively through an open, formal process similar to that used by other SDOs. All interested members of the Java Community may participate.
- Oracle's competitors are active participants.
 - IBM, HP, and RedHat to name a few.
- The Open Source and developer communities are also represented.
 - The Eclipse Foundation, Java User Groups.

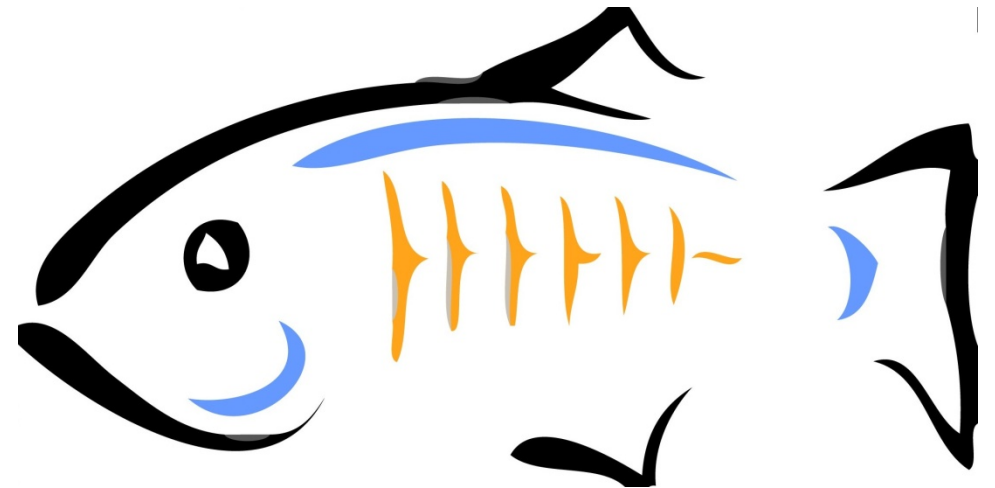
Executive Committee Members

ARM	Azul Systems	Credit Suisse
Eclipse Foundation	Ericsson	Freescale
Fujitsu	Gemalto M2M	Goldman Sachs
Hazelcast	HP	IBM
Intel	Werner Keil	London Java Community
Geir Magnusson	MicroDoc	Oracle
Red Hat	SAP	Software AG
SouJava	TOTVS	Twitter
V2COM		

Open Source Implementations

- The Reference Implementations of the Java SE and Java EE platforms are also developed collaboratively and released under open-source licenses.
 - Java SE: OpenJDK
 - Java EE: Project GlassFish

OpenJDK



Why Participate?



Joining the JCP and the Java community empowers you to:

- Take Initiative
- Adapt and Inform
- Develop New Markets
- Grow Developers

Take Initiative

- Influence the technologies that drive your market.
- Ensure your interests, practices, and experience are considered as Java evolves.
- Reduce risk of changes in Java that contain requirements incompatible with your products or services.
- Ensure a level playing-field and mitigate decisions by competitors that may compromise your product leadership.

Adapt and Inform

- Ensure that you are aware of Java trends, enabling you to adapt (and ship compliant products) before competitors.
- Understand how others deal with technical changes and prepare solutions.
- Help shape Java's evolution in a way that does not require expensive changes to your existing products or continues support of older platforms.

Develop New Markets

- Define a standard foundation on top of which all can compete.
- Grow existing markets and help create new opportunities for business.
- Ensure that you are well-positioned to compete within those markets.
- Improve your time-to-market.
- Collaborate with your competitors to share fundamental R&D costs.

Grow Developers

- Participation in the JCP and the Java can Improve developer business and technical skills.
- Participants develop valuable contacts, and improve “soft skills”.
- Developers can react more swiftly to changes in the competitive environment.
- Adjust your business strategy to respond to standards-related events.

CREATE THE FUTURE



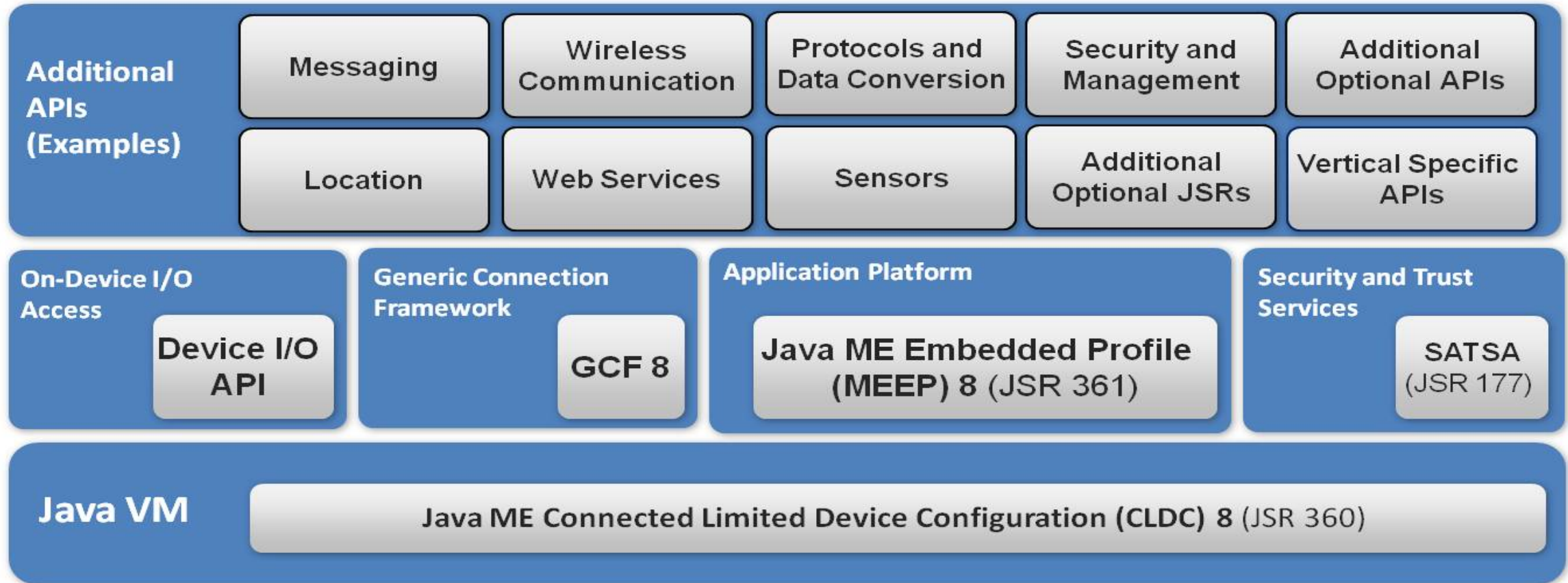
Background



Java SE 8: JSR 337 (March 2014)

Java Language								
java	javac	javadoc	apt	jar	javap	JPDA	JConsole	Java VisualVM
Security	Int'l	RMI	IDL	Deploy	Monitoring	Troubleshoot	Scripting	JVM TI
Java Web Start				Applet / Java Plug-in				
AWT			Swing			Java 2D		
Accessibility	Drag n Drop		Input Methods		Image I/O	Print Service		Sound
IDL	JDBC	JNDI	RMI	RMI-IIOP		Scripting		
Beans	Java Database Connectivity API			Output	JMX	JNI		Math
Networking	Override Mechanism		Security	Serialization		Extension Mechanism		XML JAXP
lang and util	Collections	Concurrency Utilities		JAR		Logging	Management	
Preferences API	Ref Objects	Reflection		Regular Expressions		Versioning	Zip	Instrumentation
Java Hotspot Client and Server VM								

Java ME 8: (JSRs 360 & 361) – April 2014



Java EE 7: (JSR 342) – May 2013



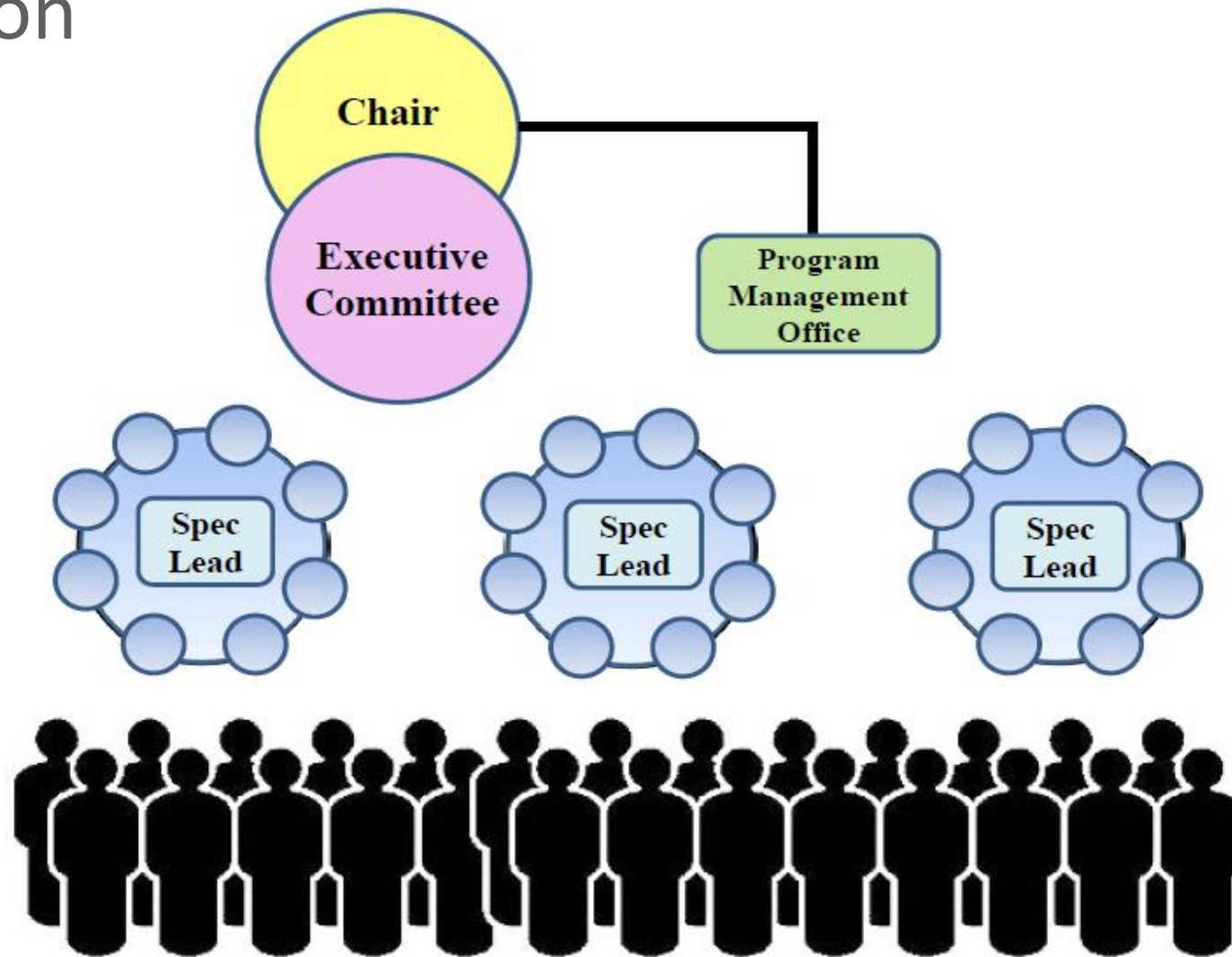
How do we do it?

- Java Specification Requests (JSRs).
 - A JSR is a single version of a Java specification.
- JSRs are led by a JCP member (the Spec Lead), with a group of interested members (the Expert Group) helping with the day-to-day decisions and work.
 - Any JCP member can submit and lead a JSR.
- Each Expert Group must deliver:
 - The Specification.
 - A Reference Implementation (RI).
 - A conformance test suite (Technology Compatibility Kit, or TCK).

Compatibility Testing



Organization



Who does what?

- JCP Chair
 - Leads the organization and manages the PMO.
- Program Management Office (PMO)
 - Manages day-to-day operations of the organization.
- Executive Committee
 - Votes on JSRs at defined stages through the process.
 - Defines JCP governance, processes, and membership terms.
- Expert Groups
 - Create JSRs (write the spec, develop the RI and TCK.)
- Members
 - Review specs, may participate in Expert Groups, vote in EC elections.

The Executive Committee

- Executive Committee (EC) responsibilities:
 - Review and vote on JSRs as they move through the process.
 - Evolve organization's Constitution.
- The EC Meets monthly by phone (3 times a year face-to-face).
- Meeting minutes and materials are public.
 - See http://jcp.org/en/resources/EC_summaries.
- We hold two public teleconferences and one public face-to-face meeting each year.
- We have a public mailing list for feedback.
 - Sign up at <http://java.net/projects/jcp-ec/lists>.

Executive Committee elections

- The Executive Committee has 25 members.
- Oracle has a permanent seat.
- 16 seats are Ratified (Oracle nominates candidates and the entire JCP membership must approve them by voting).
- The remaining 8 seats are Elected (any JCP member may nominate themselves and members choose by voting).
- Each year half of the members must stand for re-election.

Executive Committee Members

ARM	Azul Systems	Credit Suisse
Eclipse Foundation	Ericsson	Freescale
Fujitsu	Gemalto M2M	Goldman Sachs
Hazelcast	HP	IBM
Intel	Werner Keil	London Java Community
Geir Magnusson	MicroDoc	Oracle
Red Hat	SAP	Software AG
SouJava	TOTVS	Twitter
V2COM		

The Spec Lead

- The JCP member responsible developing a JSR.
- Must deliver the Spec, RI, and TCK.
- Oracle is the Spec Lead for the three existing Platforms: Java ME, Java SE, and Java EE.

The Expert Group

- The Expert Group is recruited and led by the Spec Lead.
- All members of the JCP are eligible to join.
- Should represent all interested sectors of the Java community.
- Works as a team to define the JSR and to develop the Spec.
- Must operate transparently, so that JCP members and the public can review and participate in its work.

The Membership

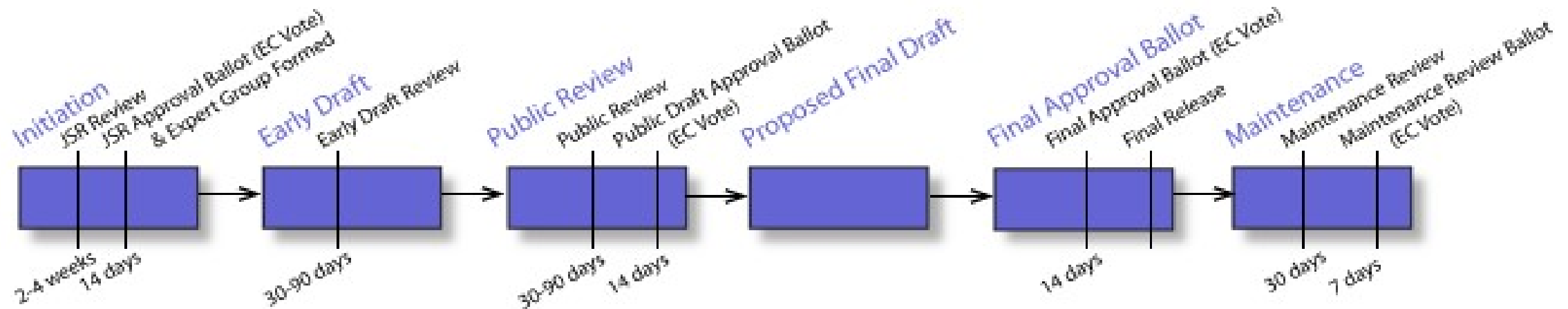
- Anyone can join.
- Total membership is approximately 800.
 - 3700 registered users at jcp.org.
- We used to charge commercial organizations \$5K/year but now there are no membership fees for any class of member.

Who Are The Members?

- Membership distribution by type:
 - 80% individual.
 - 13% corporate.
 - 7% non-profit (mostly Java User Groups).
- Membership distribution by location:
 - 52% North America.
 - 31% Europe and the Russian Federation.
 - 14% Asia and the Middle East.
 - 3% South America.

The JSR Development Cycle

- Includes formal public reviews and votes by the Executive Committee.
- See the [Process Document](#) for the details.



JSR Submission

- Identify the submitters, the Specification Lead(s), and the initial members of the Expert Group.
- Describe the proposed specification and the reasons for developing it.
- Identify the target Platform(s).
- Estimate the development schedule.
- Describe the working model the Expert Group will adopt, and how it will involve the community and the public.
- Identify preexisting documents, technology descriptions, or implementations that might be used as a starting point.
- Publish the licensing terms for the Spec, RI, and TCK.

JSR Review and Approval Ballot

- JSR proposals are published on the JCP website.
- JCP members, the Executive Committee, and the public review and comment.
- JCP members may request to join the Expert Group during this period.
- The Executive Committee votes on the JSR after the review period.
- If the JSR is voted down, submitters have 14 days to revise and resubmit for a second vote; if this fails the JSR is closed.

Expert Group formation

- Expert Group formation begins when the JSR is approved.
- Members request to join the EG through an online form.
- No size limit; Spec Leads should ensure that all interested parties are represented, but should keep the group small enough that it will be able to function efficiently.
- Members may be added at any time, subject to the agreement of the existing membership.
- The EG decides its mode of operation (communication mechanisms, meeting schedules, etc.)
 - Transparency and community involvement are required.

Early Draft

- The Expert Group's first deliverable is the Early Draft.
 - Provides the JCP membership and the public with a draft that is detailed enough to generate useful feedback.
- No fixed deadline for generating the draft – EGs should take as long as they need (but no longer!)
- Early Draft is published for review on the JCP website.
 - Review period is typically 30 days but may be longer.
- No ballot at this stage – the purpose is to gather feedback.
- EGs may choose to revise the draft and resubmit if feedback indicates that significant changes need to be made.
 - OK to iterate through several Early Draft reviews.

Public Review

- Spec should be relatively complete before Public Review.
- Expert Group should also be developing the RI and TCK while working on the spec.
- Spec is published for review on the JCP website.
 - Review period is 30–90 days (the EG decides how long).
- All public comments should be considered and addressed.
- The Public Draft Specification Approval Ballot takes place during the final 7 days of the review
- If the ballot fails, the EG has 30 days to resubmit for a Reconsideration Ballot.
 - If this ballot fails, the JSR is closed.

Proposed Final Draft

- The EG submits a Proposed Final Draft of the spec to the PMO.
 - This should incorporate and address feedback from the Public Review.
- Spec is posted on the website for public download.

Final Approval and Release

- The EG prepares the Final Draft of the spec and completes the RI and TCK.
 - The TCK must meet quality and coverage goals.
 - The RI must pass the TCK.
 - A test appeals process must be defined.
 - Final RI and TCK licensing terms must be published.
- The EC has two weeks to review these materials and to cast their votes in the Final Approval Ballot.
- If the ballot fails the EG has 30 days to resubmit for a Reconsideration Ballot; if that fails, the JSR is closed.
- Approved JSRs are posted for Final Release and may then be implemented commercially.

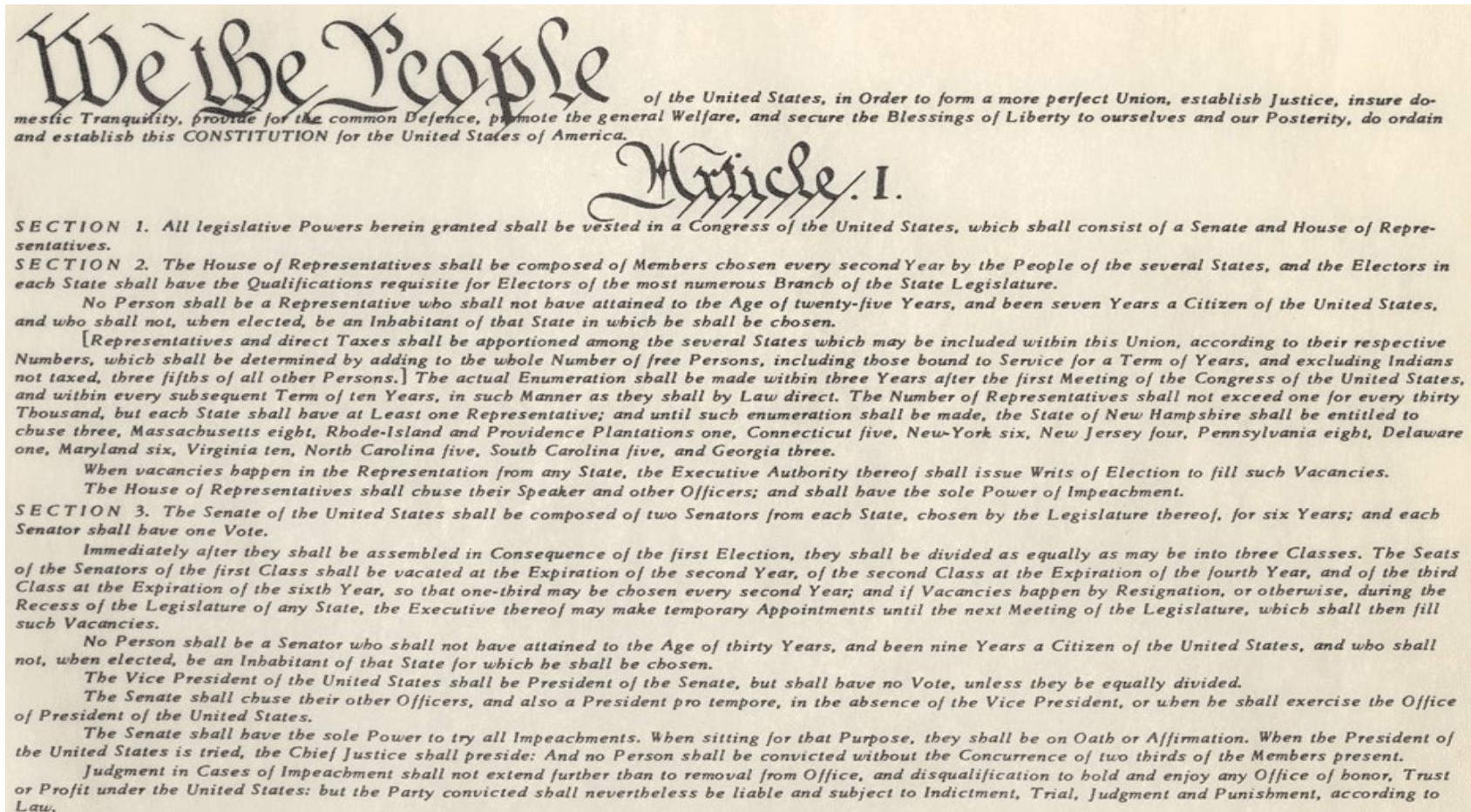
Maintenance

- Spec Leads are expected to make a long-term commitment to revise and update the spec, RI, and TCK.
- The Spec Lead typically takes on the role of Maintenance Lead.
 - Reviews proposed changes in the Issue Tracker and decides which are to be included in the Maintenance Release.
- 30-day public Maintenance Review period followed by a seven-day ballot.
- When the Spec, RI, and TCK are updated and published, the Maintenance Release is completed.

Summary of JSR Stages

- JSRR: JSR Review: 2 or 4 weeks.
- JAB: JSR Approval Ballot: 2 weeks.
- EDR: Early Draft Review: 1-3 months.
- PR: Public Review: 1-3 months.
- PRB: Public Review Ballot: 2 weeks.
- PFD: Proposed Final Draft : no time frame.
- FAB: Final Approval Ballot: 2 weeks.
- FR: Final Release.
- MR: Maintenance Review: 1 month.
- MRB: Maintenance Review Ballot: 2 weeks.
- MREL: Maintenance Release.
- Each stage must be completed before the EG moves on to the next.

JCP.next: Changing the Constitution



Legal Framework and Governance

- The Java Specification Participation Agreement (JSPA)
 - A legal contract between members and Oracle.
 - Addresses Intellectual Property (IP) grants and the terms under which the Spec, RI, and TCK must be licensed.
 - <http://www.jcp.org/aboutJava/communityprocess/JSPA2.pdf>.
- The Process Document
 - Defines the governance of the organization.
 - Defines the processes that are used to submit define, develop, review, approve, and maintain specifications.
 - Defines the obligations to produce an RI and TCK.
 - <http://jcp.org/en/procedures/jcp2>.

Using the Process to Change the Process

- We modify the Process (as defined in the JSPA and the Process Document) by filing JSRs.
- The Chair is the Spec Lead and the Executive Committee members form the Expert Group for these JSRs.
- Process-change JSRs go through all of the same stages as regular JSRs.
- The output is a new version of the Constitution.
- Since 2012 we have been working on a series of four JSRs, collectively referred to as JCP.next, to reform the our processes.

JCP.next.1 (JSR 348)

- This JSR implemented a number of relatively simple but significant changes to make our processes more transparent and to enable broader participation.
 - Expert Groups must do their work in the open, using public mailing-lists and public Issue Trackers.
 - They must enable the public to observe and review their work, and must respond to public comments.
- The JSR was completed in October 2011, and defined version 2.8 of the Process Document.
- As a result we saw a significant increase in developer participation in the JCP, primarily through Java User Groups and the Adopt-a-JSR program.

JCP.next.2 (JSR 355)

- The JCP used to have two Executive Committees: one for Java ME and one for Java SE and EE combined.
- Because *Java is One Platform* and because we expect Java ME and Java SE to converge over time, JSR 355 was introduced to merge the two Executive Committees into one.
- This JSR reduced the total number of EC members from 32 to 25 while maintaining the 2:1 ratio of Ratified to Elected seats.
 - It made no other significant changes to our processes.
- The JSR was completed in August 2012.

JCP.next.3 (JSR 358)

- The JSPA has not been significantly modified since 2002.
- Since then the organization and the environment in which we operate have changed significantly.
- This JSR will modify the JSPA and the Process Document, defining new (and hopefully simpler) IPR and licensing policies that will facilitate the adoption of open-source licensing and development practices.
- This is difficult and slow work.
 - The JSPA is complex and difficult to understand.
 - We must be careful not to break anything.
 - All EC members (and their lawyers!) must reach agreement.
- This JSR is ongoing.

JCP.next.4 (JSR 364)

- This JSR was spun-off from JSR 355 in order to implement membership-related changes more quickly.
- Goal: encourage more individuals to join and participate in the JCP while ensuring that we have appropriate IP commitments from all members.
- New Associate membership class for individuals with a much simpler membership agreement (no lawyers and no employer approval required).
 - Associate members can be formally recognized as Contributors to JSRs.
- New Partner membership class for Java User Groups that are not legal entities.
- Free membership for corporations.
- In progress now – expected completion in 2015.