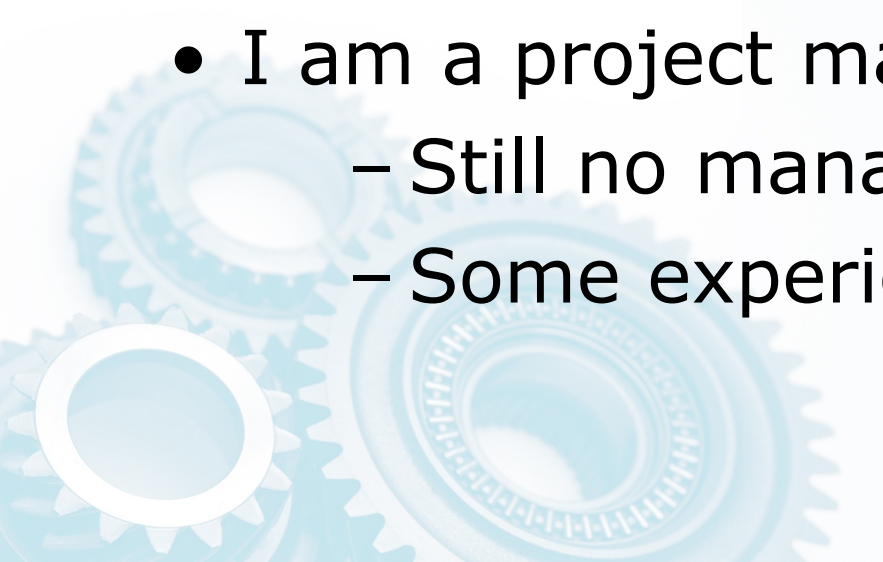# Distributed Project Management in BIND 10

Shane Kerr

Internet Systems Consortium (ISC)

Disclaimer

- This talk is about project management
- I was a programmer
  - No managerial education or training
  - Some software engineering training
  - Love computers, hate business
- I am a project manager
  - Still no managerial training
  - Some experience, mostly mistakes!

Warning!

This could happen to you!!!

BIND 10

?

- The Future of DNS software
- Successor to BIND 9:
    - 80% of DNS servers worldwide!
    - Reference implementation
    - 10 years old
- Open Source (BSD license)
- 5 year project to implement
    - Sponsored work, dedicated team

ISC

ISC Style of Work: A History

Long long ago, Paul Vixie noticed a smart guy named Mark Andrews doing a bunch of work on BIND. Mark Andrews lives in Australia.

Paul: "Want to work for me?"
Mark: "No worries, mate! But I'd hate to leave the outback…"
Paul: "Okay, work from there, we'll use the Internet!"

ISC Style of Work: Practical Details

- E-mail is critical
    - Personal, mailing lists
- VoIP
    - Direct calls, conference calls
- Jabber
    - Personal IM, chat rooms
- Face to face meetings
    - At head office, IETF/other conference

ISC Style of Work: New for BIND 10

- Scale of co-operation
  - More staff on on project
  - Long-running effort
- Co-existence with other projects
  - BIND 9, ISC DHCP at same time
  - Other engineering efforts
- Open development
  - Not just open source
  - Community interactions key

Top Tool Tip: Trac

Trac is a web-based tool to help software development.

Problems with Trac

- Usual Wiki problems
  - Entropy: tends to disorder
  - No standards for markup
- Ticket system not flexible
  - Minimal support for workflow
- Not great for NON-developers
- Subversion… see next slide.
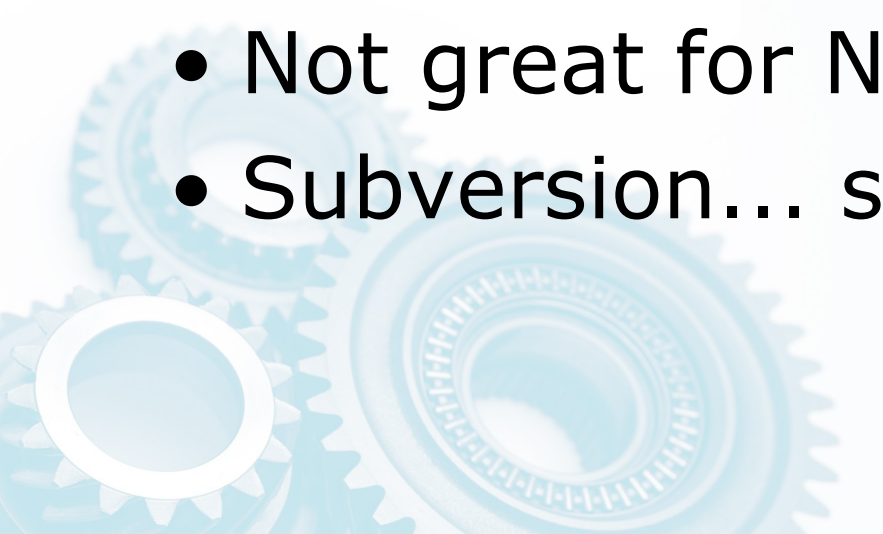
Revision Control

- Subversion picked
    - "A Better CVS"
    - Excellent Trac integration
    - Centralized: one repository
- Next step: distributed system
    - Mercurial or git
    - Develop isolated branch, then merge
- Procedures always needed
    - Rules for branches, releases, review

BIND 10: Development Team

- ISC staff
- Also non-ISC (JPRS, CNNIC)
- More in future!

BIND 10: Communication Challenges

- Time
- Space

BIND 10: Communication Challenges

- Time
    - Japan: UTC+9
    - Netherlands: UTC+1 (+2 in summer)
    - California: UTC-8 (-7 in summer)
- Space
    - AMS → SFO: at least 11 hours flying
- Culture
    - Closed to open development
    - Company, country, language issues

BIND 10: Communication Solutions

- E-mail for proposals & decision
- Jabber for chatting
  - *No* decisions
- Weekly conference calls
  - 23:00 in Beijing!
  - Agenda on e-mail list
  - Minutes on Wiki
- Quarterly face-to-face meetings

Types of Management

- Process Management
  - Ongoing work
  - Examples: restaurants, support, operations, …
- Project Management
  - Work with a beginning and an end
  - Examples: construction, software development, …
- BIND 10 is a *Project*
- BIND 10 Support will be a *Process*
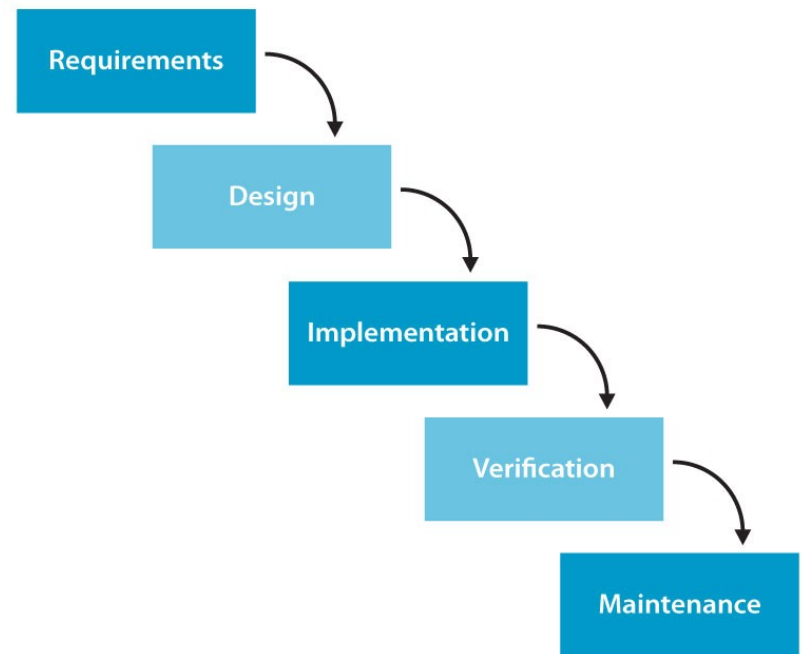
Project Lifecycle

- Many, many, *many* styles
  - Large companies use standards
  - ISC does not ;)
- All models are similar, roughly:
  - Initiate (describe, identify skills & resources, **company commitment**)
  - Plan (tasks, ordering, estimates)
  - Execute (do the work, track plan)
  - Conclude (verify work, champagne)

Software Lifecycle Models

- Describes how software is built
  - Fundamentally project-based
- Many, many, *many* styles
  - Large companies use standards
  - ISC does not :(
- Long history, going back to 1950s
  - Best practices from other industries
  - Software is *unique* in many ways

BIND 10: Y1 Lifecycle Model

- bootstrapping problem
- Waterfall model
  - Requirements
  - Design
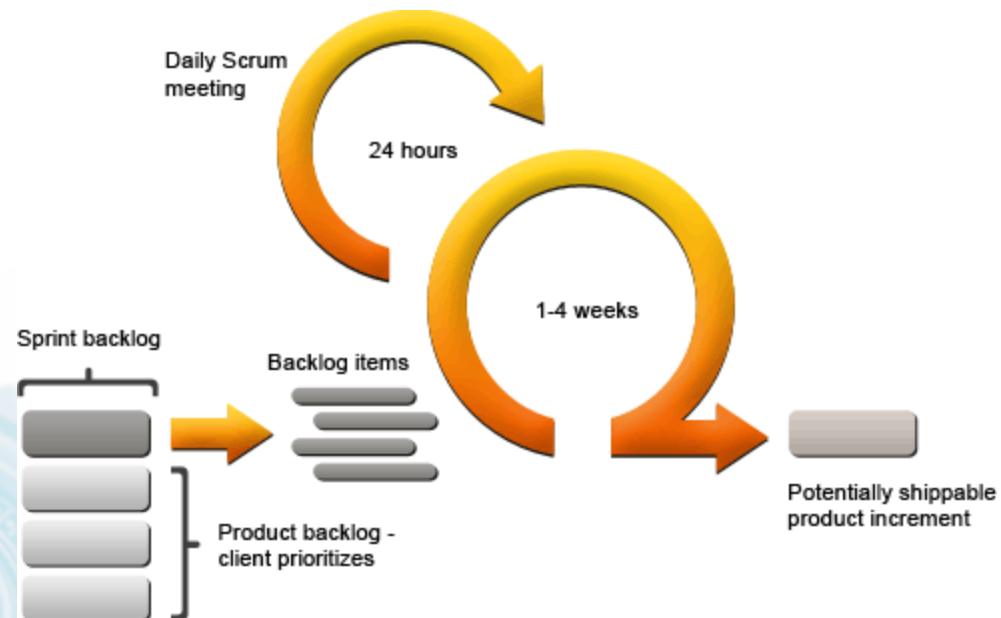 - Implementation
  - Testing

BIND 10:
Waterfall Problems

- Classic problems
  - Delays "cascade": not enough testing
  - Uncertain requirements/design

- Semi-unique problems
 - People not available in beginning
  - Project had many parts

BIND 10: Y2 Lifecycle Model

- Want something *agile*
  - Shorter timelines, more interaction
  - Processes insure productivity
- Scrum?

Daily Scrum meeting

24 hours

1-4 weeks

Sprint backlog

Backlog items

Product backlog - client prioritizes

Potentially shippable product increment

Lifecycle Model?

- Scrum issues
    - No experience with scrum
    - No backlog of work to build from
    - No customer
    - Daily meetings impractical
- Similar issues with all agile methods
    - Designed around small teams
    - Require constant feedback
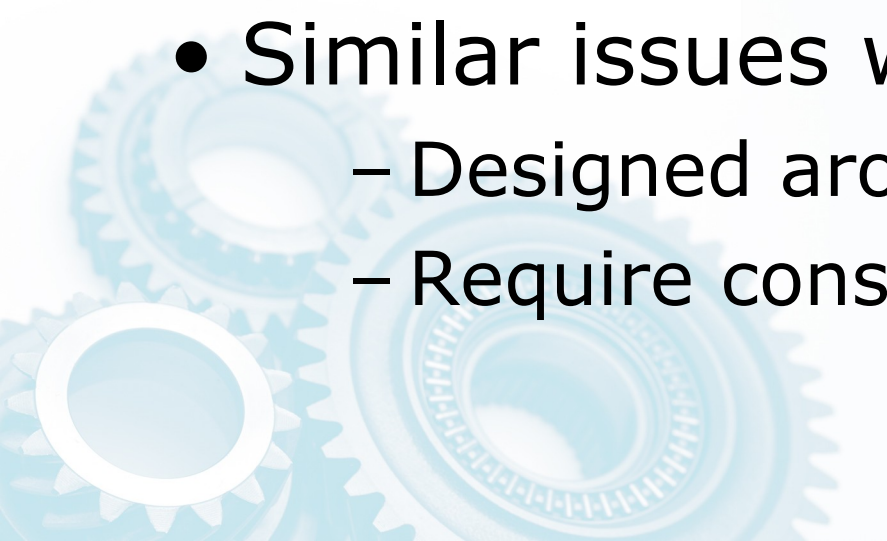
Moving to Agile Development

- No experience:
    - Lots of stuff online... try it!
- No backlog of work to build from:
    - Make a backlog
    - Was in Wiki, now in tickets, later...?
- No customer:
    - Currently doing without...
- Daily meetings impractical
    - Jabber "bind10-daily-status"

Current Challenges

- Minimizing conference call time
- Better integrating ISC/non-ISC staff
- Revising development tools
  - Subversion to Mercurial/git
  - Tracking backlog & other tickets
- Weekly/daily reports
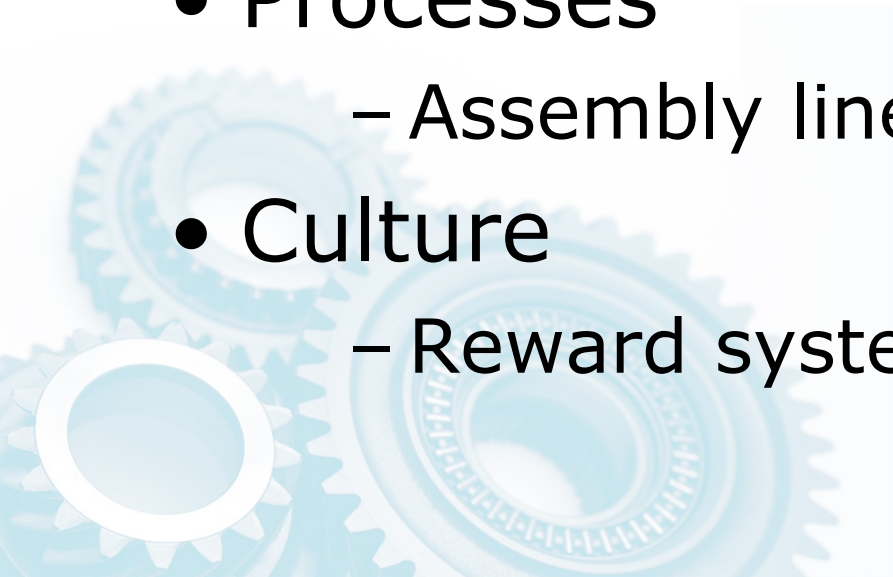 - Not fun for developers

Crazy Idea Section

Technology

- High-tech
  - Computers, software, mobile phones
- Low-tech
  - Farming, road-building
- Processes
  - Assembly lines, checklists
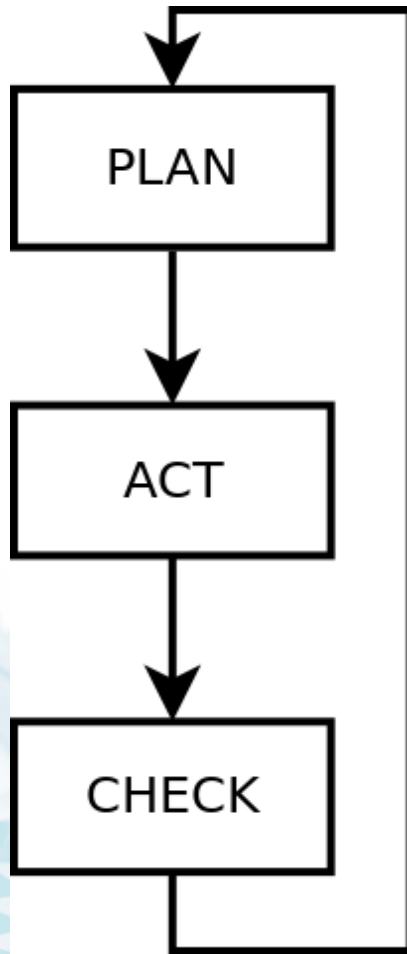- Culture
  - Reward systems, open source

All Systems Need Feedback

- Cars need drivers
- Documents need editing
- Software needs testing

If the process does not have a step for correction, the first step is to add that to the process!
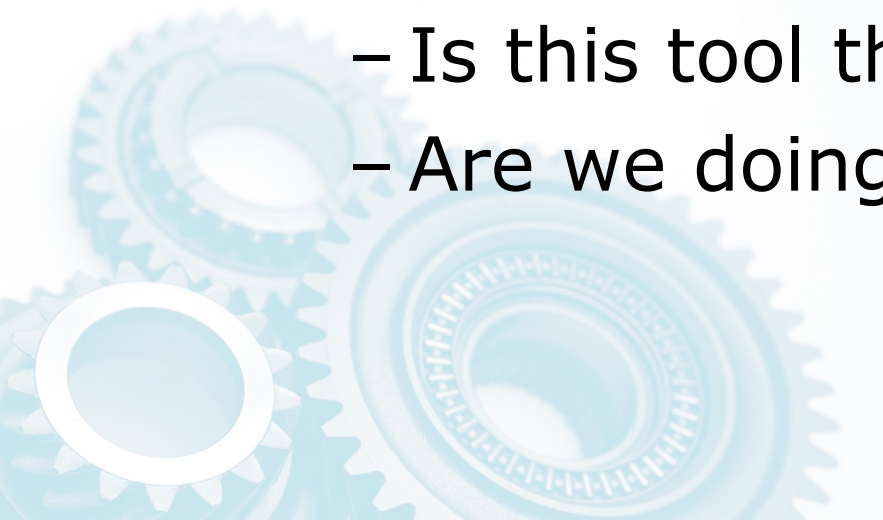
Iteration and Feedback

- Creating *artifacts* makes this easier

- Checking can be event or time-based

- Meta-level work also important

Iteration & Feedback: BIND 10 Examples

- Procedures have dates
    - Last review, next review
- Periodic assessment
    - Post-mortem at each release
- Culture of improvement
    - Is this tool the best? (Subversion)
    - Are we doing this well? (Meetings)

Iteration/Feedback and Projects

- Projects start
  - Re-use of process is efficient
- Projects end
  - Lessons can apply to next project
- The Goal is the Goal

Improving the process is nice, but only when it helps improve the output of the project

BIND 10

?

- Mascot Contest!!!
    See http://www.isc.org page!
- Questions or comments?

ISC