Change Management with Puppet

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PuppetNYC Users Group

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We are hiring

- Professional Services
- Core Developer
- Front End Web Developer
- QA/Test Eng
- Web Marketing Manager
- Sales Account Manager

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PICC

Professional IT Community Conference

- April 29th and 30th
- Hyatt Regency in New Brunswick, NJ
- Travel expenses provided

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What?

Change – “an event that results in a new status of one or more configuration items”[1]

[1] – http://en.wikipedia.org/wiki/Information_Technology_Infrastructure_Library#Change_Management

Why?

Environments are the same!

Dev == QA == Staging == ... == PROD

Why?

Compliance with Change Management policies

- CAB – Change Approval/Advisory Board
- Different environments have different criteria for passing to the next one

Different Environments

Puppet Test Area -> Dev -> QA -> Prod

Each environment has different teams and sometimes conflicting goals

Gate Examples

Puppet Test Area -> Dev

- Dev's agree/know of change

Dev -> QA

- Dev's have completed and self tested

QA -> Prod

- QA team has verified systems
- Ops is ready (has runbooks, monitoring setup, ...)

Documentation and Policies

Understand your environments

- What are they?
- What is their order of precedence?
- What are their SLA’s?
- Who owns them?

Documentation and Policies

Understand gating factors for change

- What are the gates between each environment?
- Who approves them?
- In what forum are they approved?

VCS Structure (SVN view)

```
├── branches
|   ├── 644
|   |   ├── manifests
|   |   |   └── site.pp
|   |   └── modules
|   |       ├── apache
|   |       └── zenoss
|   └── 755
|       ├── manifests
|       |   └── site.pp
|       └── modules
|           ├── apache
|           └── zenoss
├── tags
|   ├── 2011041100
|   ├── 2011041101
|   └── 2011041200
└── trunk
    ├── manifests
    |   └── site.pp
    └── modules
        ├── apache
        └── zenoss
```

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VCS Structure (git view)

same as SVN except

- you do **not** have separate directories for
  - trunk
  - branches
  - tags

VCS Structure

trunk / master

- New code that is the best known **working code**
- but still not very well tested ...

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VCS Structure

branches

- short lived
- use topical branches!
- associate branches with ticket numbers, so you can leverage your ticketing system to capture who is requesting changes and why
- avoid assigning branches to people as they tend to be long lived

VCS Structure

tags

- immutable (even if you can technically make changes)
- found that BIND style serials work quite well for naming tags
- 2011041300 would be the first tag on April 13th, 2011.

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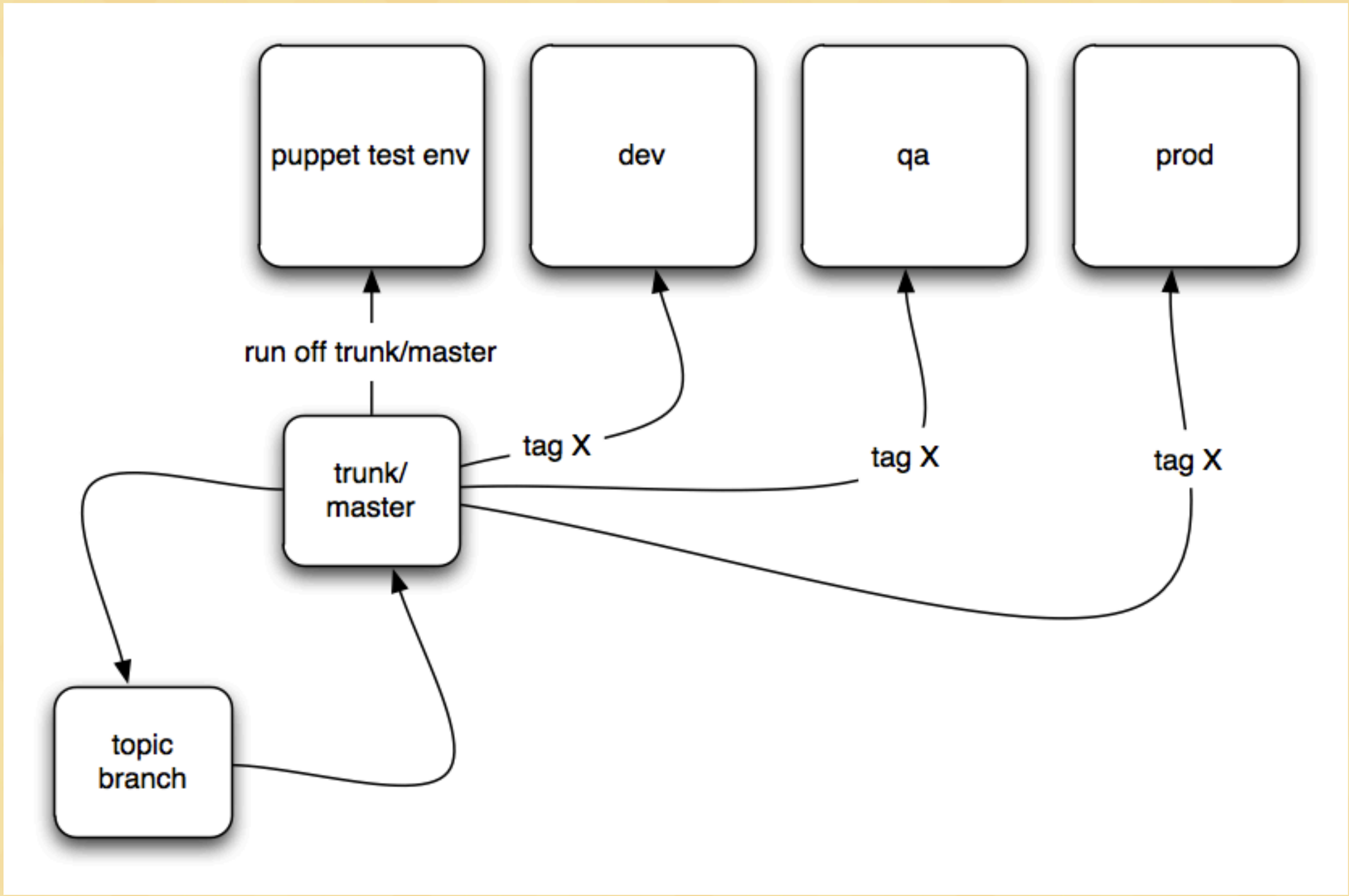
Flow

- Change request comes in (from your ticket system)
- You create a branch from trunk/master that corresponds with the request
- Make changes to the branch
- Merge the branch back into trunk/master
- test against trunk/master
- create a tag
- associate that tag with the next environment all the way through to Prod

Flow



Oops, we found a bug

- tags are immutable, remember?
- create a brand new tag off of trunk/master
- start the process from the beginning
- short-cuts are more expensive

Release Management

Multiple people making changes?

- You need a release manager to be responsible for merging from branches into trunk/master
- Potentially rotate who holds this position

Release Management

Multiple teams exchanging code?

- Investigate using multiple module paths
- Communication!
- private github – can facilitate cooperation

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Mailing List of changes

Create a mailing list for all changes

- You can always ignore it
- reach out to those writing poor code before they ask you to merge it into trunk
- svnmailer is great

Testing trunk/master

Create at least one representative system for each different type of system you model

- Run these systems off the code in trunk/master
- Before cutting a tag, rebuild all these systems from scratch
  - further tests that relationships between resources are working
  - proves you can actually provision a system from scratch

Approaches to testing branches

- Puppet's understanding of environments is good for this
- Setup a different Puppet master per branch
- Do not rely on a puppet master at all -- use puppet apply and test locally

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