



Berner Fachhochschule
Haute école spécialisée bernoise
Bern University of Applied Sciences

Linux – The Next Generation

A Linux Roadmap for 2014

Wednesday, 22th January 2014 15:00 – 16:00

BFH – Conference Room C.O.R.A. (Dammweg 3, 1. 1st Floor, Bern)

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IT System Engineers, Infrastructure Team

Overview

Design

- ▶ General Guidelines
- ▶ Distribution Choice
- ▶ System Management
- ▶ Configuration Management

Implementation

- ▶ Server
- ▶ Desktop

Wishlist

Design

General Guidelines

- ▶ Avoid Niche/NIH Solutions
- ▶ Current, Accurate and Central Documentation for every Service
- ▶ Monitor and „verify“ all Services
- ▶ Functional Hostnames
- ▶ Enforce as strong Crypto Defaults as reasonably possible
- ▶ Be a good Citizen and behave well with others

Distribution Choice (1)

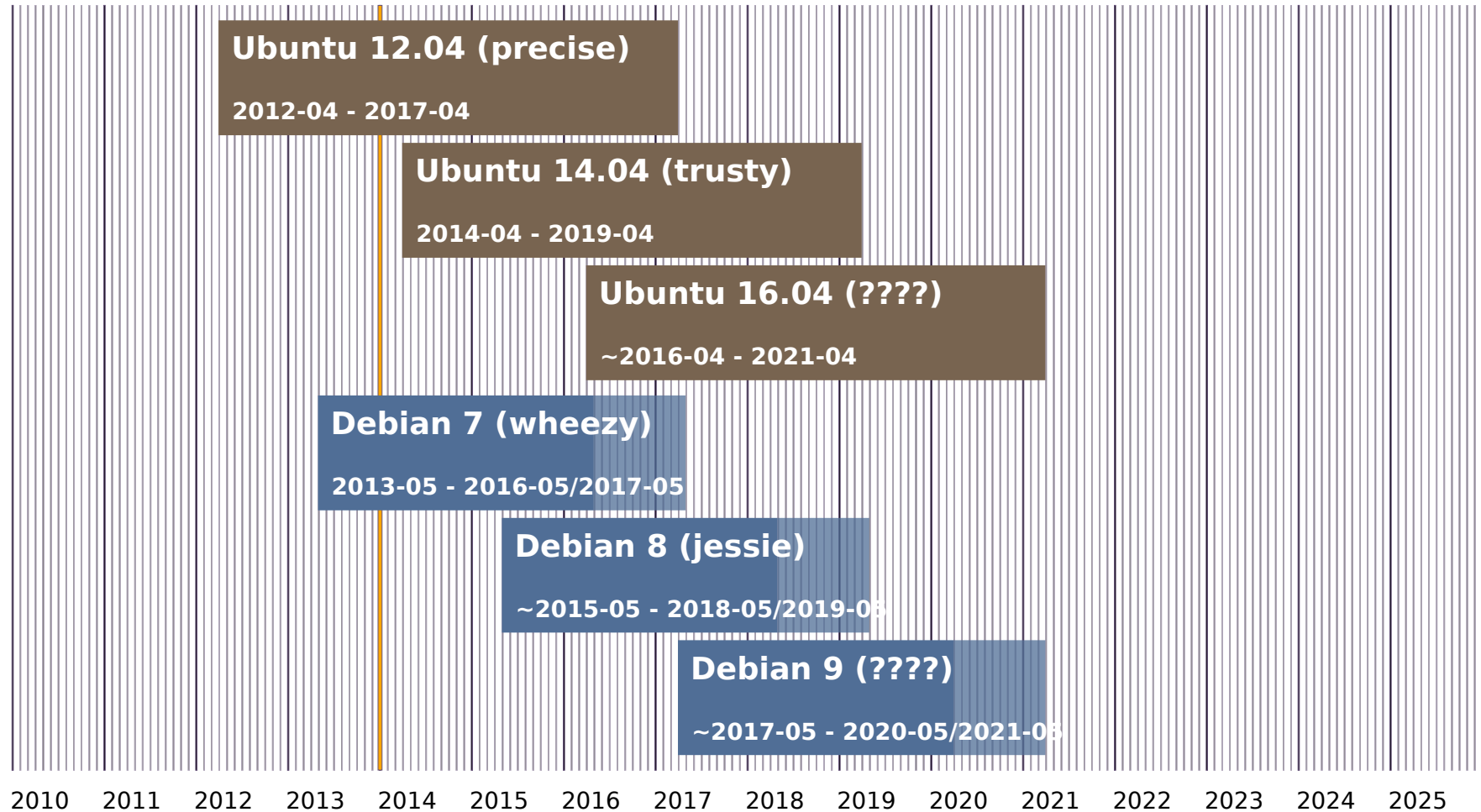
- ▶ Standardize on one Distribution only (except for RHEL for Oracle)
- ▶ Standardize on one Base System Release only
- ▶ Standardize on one Configuration Methodology

- ▶ Standardize on *.deb

Debian vs Ubuntu

- ▶ Pro Debian: More Packages, all equally supported
- ▶ Contra Debian: „unpredictable“ community
- ▶ Pro Ubuntu: Commercial Entity, promised Release Cycles, „newer“ Desktop Software
- ▶ Contra Ubuntu: „unpredictable“ and unsupported archive state for !main, NIH/Competitive Advantage Syndroms

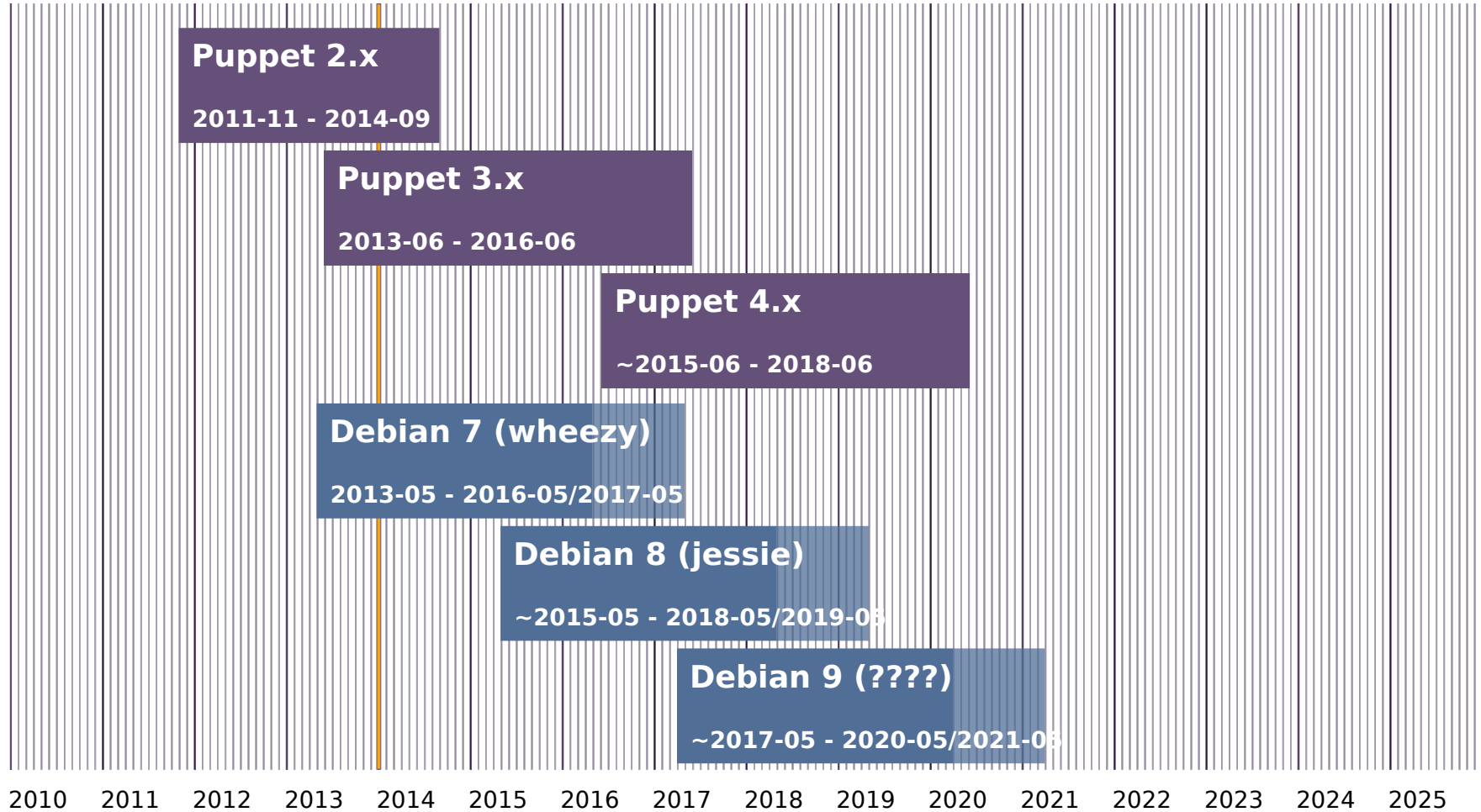
Vendor Support



Distribution Choice (2)

- ▶ No Difference between Desktop and Server
- ▶ Traditional Rolling Distribution
- ▶ Hybrid Rolling Distribution

Software Lifespan



System Management

- ▶ Components
- ▶ Reuse of the same Building Blocks
- ▶ Fast, no Performance Penalty
- ▶ Easy to handle
- ▶ Integration

Conventional

**Service
Service**

**Service
Service**

**Service
Service**

**Service
Service**

Base System

Base System

Base System

Base System

Hardware

Hardware

Hardware

Hardware

Virtualization

**Service
Service**

**Service
Service**

**Service
Service**

**Service
Service**

Base System

Base System

Base System

Base System

Virtualization

Isolation

Service

Service

Service

Service

Service

Service

Service

Service

Isolation

Virtualization

Configuration Management

- ▶ Authoritative

- ▶ Mandatory

Puppet

- ▶ Scalable

- ▶ Extendable

- ▶ Established

- ▶ Beyond Linux

Implementation

Isolation

Service

Service

Service

Service

Service

Service

Service

Service

Isolation

Virtualization

Separation

Data

Data

Data

Data

Data

Data

Data

Data

Service

Service

Service

Service

Service

Service

Service

Service

Isolation

Virtualization

Linux Container (1)

Data

Data

Host:
`/srv/lxc/data/$fqdn`

Container:
`/srv/$fqdn`

Service

Service

Host:
`/srv/lxc/container/$fqdn`

Container:
`/`

Isolation

Host:
`/`

Container:
`n/a`

Virtualization

Host:
`n/a`

Linux Container (2)

Data

Data

Storage:

`bfhfilerbe01.bfh.ch:/vol/lx_data_01_v0_sata_eng`

Service

Service

Storage:

`bfhfilerbe02.bfh.ch:/vol/lx_containers_01_sas_eng`

Isolation

Storage:

becenter

Virtualization

Storage:

becenter

Base Infrastructure „TNG“

- ▶ Setup Base Infrastructure Services for Server Management

svlxc01.bfh.ch

- ▶ Version Control: git.its.bfh.ch (sources.its.bfh.ch)
- ▶ Build Daemon: sbuid.its.bfh.ch
- ▶ Package Archive: reprepro.its.bfh.ch (archive-master.its.bfh.ch, archive.its.bfh.ch)
- ▶ Documentation: dokuwiki.its.bfh.ch (wiki.its.bfh.ch)

Puppet „Boostrap“

- ▶ Resetup Base Infrastructure Services with Puppet
- ▶ Puppet Templates
- ▶ Puppet Workflow and Documentation for Infrastructure Services

srvlxc01.bfh.ch

- ▶ puppet.its.bfh.ch

Puppet „Infrastructure“

- ▶ Resetup ITS Services with Puppet
- ▶ Puppet Workflow and Documentation for ITS Services

svlxc*.bfh.ch

- ▶ *.its.bfh.ch

Puppet „BFH“

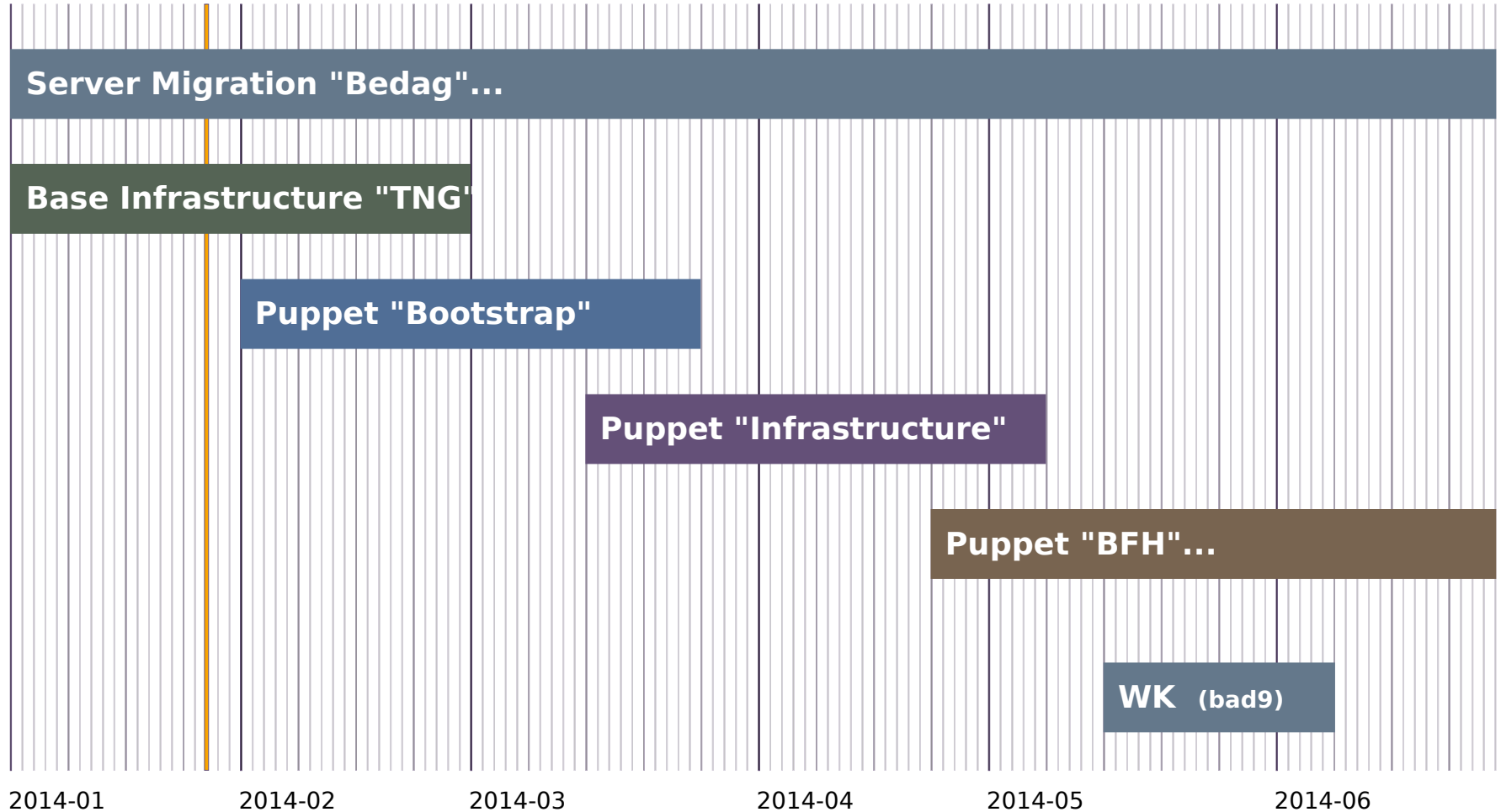
- ▶ Resetup BFH Services with Puppet
- ▶ Puppet Workflow and Documentation for BFH Services

srvlxc*.bfh.ch

- ▶ *.bfh.ch

Roadmap 2014-1: Server

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26



Desktop

Intro

- ▶ Create a Linux Default Desktop (live, installable, multiple boot media)
- ▶ Best Effort Support!
- ▶ Sustainable Deployment Model
- ▶ Contain BFH Branding where needed
- ▶ Contain no Sensitive Data (Images should be publicly distributable)
- ▶ Initial Setup Process needs to happen at BFH to bootstrap Crypto, otherwise no Crypto Setup unless initiated later/again.

Desktop „Bootstrap“

- ▶ Setup Image Autobuilder
- ▶ Add Puppet Support to live-build
- ▶ Define Initial Default Package Selections
- ▶ Define Initial Default Package Configurations
- ▶ Package missing Software
- ▶ Backport outdated Software where needed
- ▶ live-build Workflow and Documentation for BFH Services

Desktop „ISO/IMG/OVA“

- ▶ Build
- ▶ Test
- ▶ Deploy

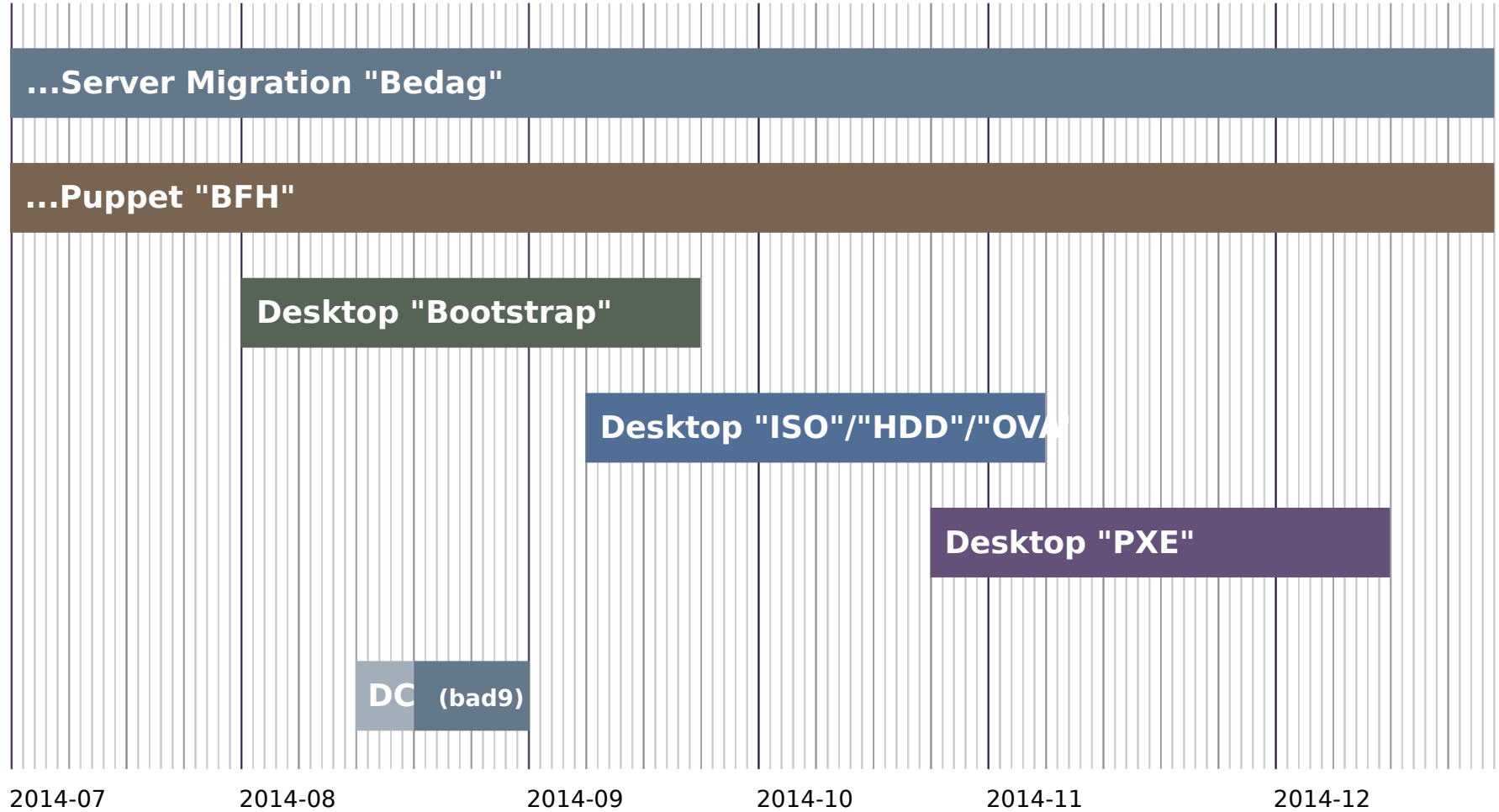
- ▶ BFH LUG
- ▶ Volunteers

Desktop „PXE“

- ▶ Migrate PXE Setup to new BFH Desktop
- ▶ Optimizations for TI Use Cases
- ▶ Package TI Software and Customizations

Roadmap 2014-2: Desktop

27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52



Wishlist

New Stuff

Linux Servers

- ▶ Ferm
- ▶ SSHGuard
- ▶ Samhain + (possibly another IDS)
- ▶ MAC
- ▶ ...

ITS

- ▶ DNSSEC
- ▶ IPv6
- ▶ OpenStack
- ▶ ...

New Services

BFH

- ▶ SSH Gateway
- ▶ Mailinglists
- ▶ Jabber
- ▶ MUA Autoconfig

- ▶ MySQL and/or PostgreSQL Cluster
- ▶ Piwik
- ▶ Owncloud
- ▶ ...

ITS

- ▶ OpenVAS Scans
- ▶ Status Page/Weather Map
- ▶ Key Escrow?

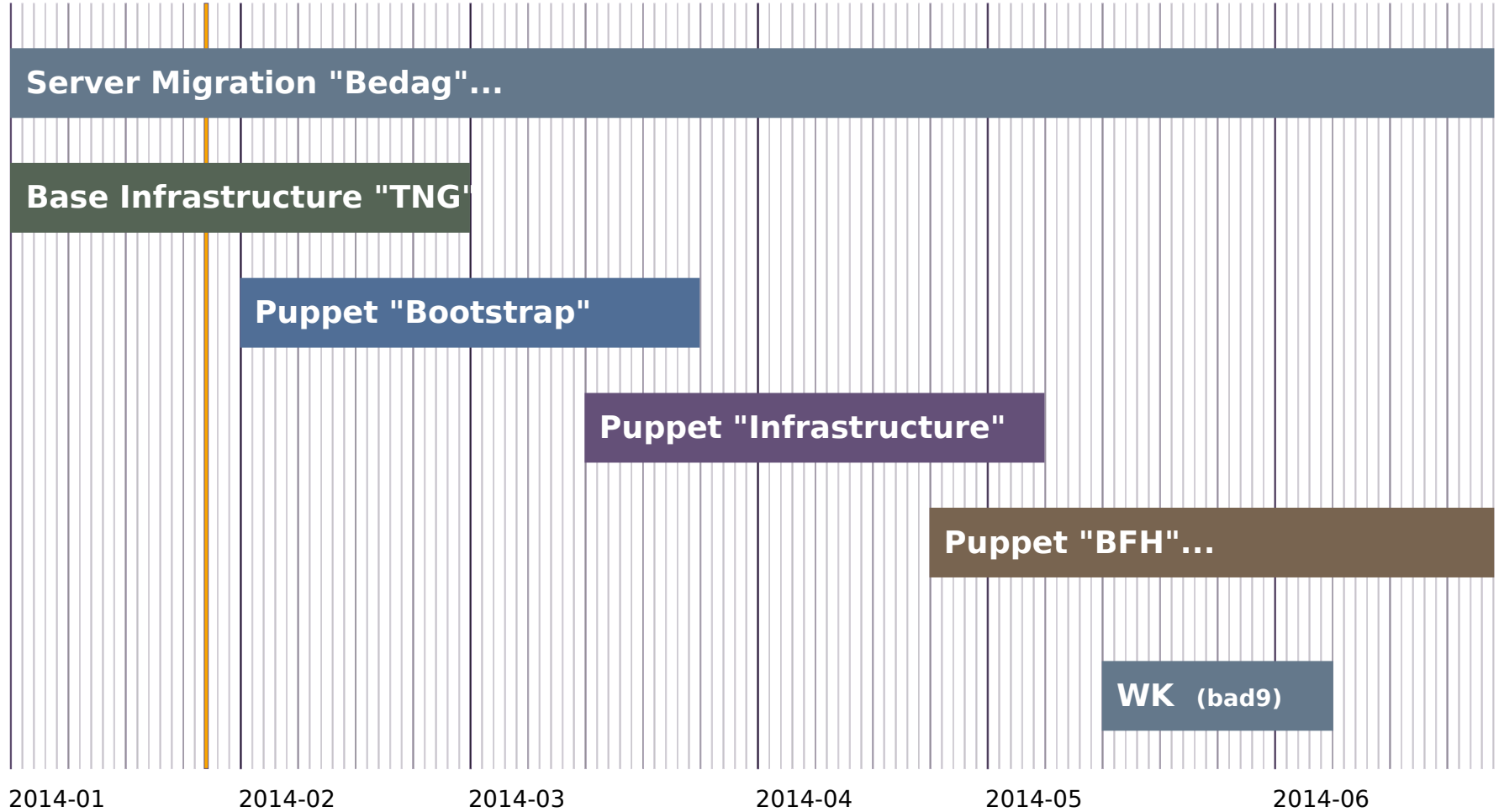
Regular Skills Exchange

- ▶ Version Control in general, and Git specifically
- ▶ OpenSSH
- ▶ Screen and other useful tools
- ▶ ...

Thank you for your attention.

Roadmap 2014-1: Server

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26



Roadmap 2014-2: Desktop

27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52

