

# μSamba: Scaling Samba Down to Micro Servers

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**SAMBA** Team

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# Outline

## Introduction

### The Abouts

## The Issue

### The Issue

## Why Bother?

## Data

### Plots

### Data Collection

## Solving the Problem

### What Happened?

### What Can We Do About It?

## Wrapping Up

### Future Work

# About Myself

- ▶ Computational Biologist
- ▶ Open Source developer
- ▶ Samba Team member
- ▶ Wrote the Samba internal DNS server



# About This Talk

- ▶ What is this all about, anyway?
- ▶ Why bother?
- ▶ How can we fix this?

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# Focus on Huge Installs

- ▶ See keynote, talks during this SambaXP
- ▶ Arguably great technical challenge

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It's web scale!

# Untested Setup = Broken Setup

- ▶ Samba 3.0 series could be small
- ▶ Samba grew in 3.2 and later
- ▶ Nobody really noticed

⇒ Many NAS boxes keep running 3.0.x



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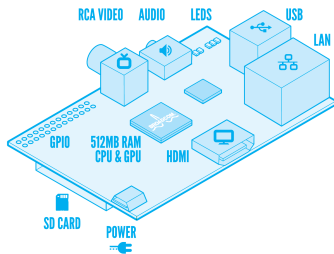
# Why Bother?

- ▶ Home users want to store files, not run AD
- ▶ Home users don't run infiniband scale-out clusters
- ▶ Home users run small, cheap NAS boxes
  - ▶ ⇒ stuck on 3.0
  - ▶ Can't get new features that way

# Meet the Pi

- ▶ 45 g of raw ARM computing power
- ▶ 700 MHz ARM11 (ARMv6) CPU
- ▶ 512 MB RAM
- ▶ 100 MbE
- ▶ 2 USB2 ports

## RASPBERRY PI MODEL B



<http://www.raspberrypi.org/>

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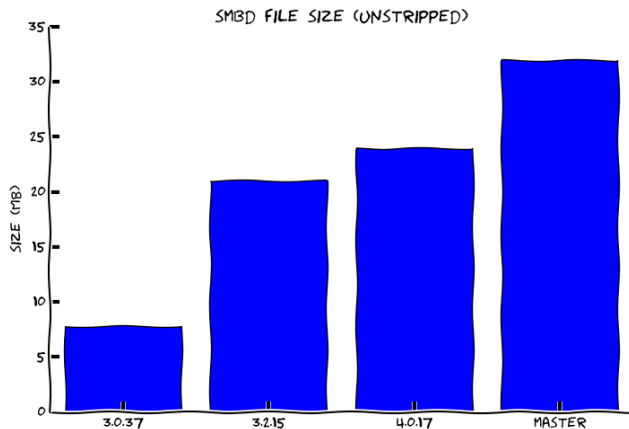
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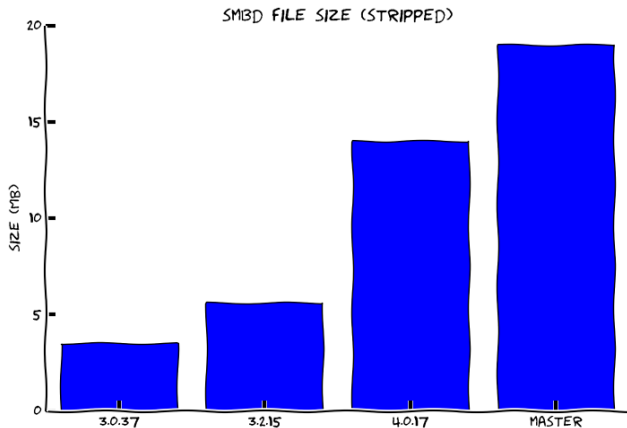
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# Unstripped Sizes



# Stripped Sizes



Version	unstripped (MB)	stripped (MB)
3.0.37	7.8	3.5
3.2.15	21	5.6
4.0.17 autoconf	24	14
master	32	19

# Data Collection

- ▶ `./configure.developer --without-ads --without-ldap1`
- ▶ `cd source/bin && cp smbd smbd.unstripped`
- ▶ `strip smbd`
- ▶ `ls -lh smbd*`

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<sup>1</sup>Apart from the master build



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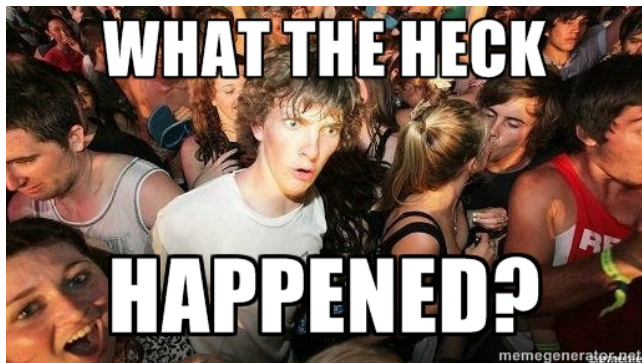
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# What Happened?



# Additional APIs

- ▶ 3070 additional symbols from 3.0 to 3.2
- ▶ 10068 additional symbols from 3.2 to 4.0<sup>2</sup>
- ▶ 6837 additional symbols from 4.0 to master

According to nm

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<sup>2</sup>actually, it's worse. This is not a static build

# What Can We Do About It?

- ▶ Not all of these symbols can be in use
- ▶ Clean up dependencies set in waf
- ▶ Add more `--without` options to configure

# What Was Done Already?

- ▶ Fixed `--without-winbind`
- ▶ Fixed static `smbd` build

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# Future Work

- ▶ Allow to disable more unneeded parts (spoolss, EPM)
- ▶ Find which symbols are unused
- ▶ ...

# Thank you

▶ Questions?