

# FIELD-CATALOG MONITORING WITH NAGIOS



# Presentation Overview

- Part I: Meet Devin
  - Background
- Part II: Project Specifics
  - The Problem
  - The Approach
  - The Result
- Conclusion
  - Future Features
  - Retrospective
- Questions

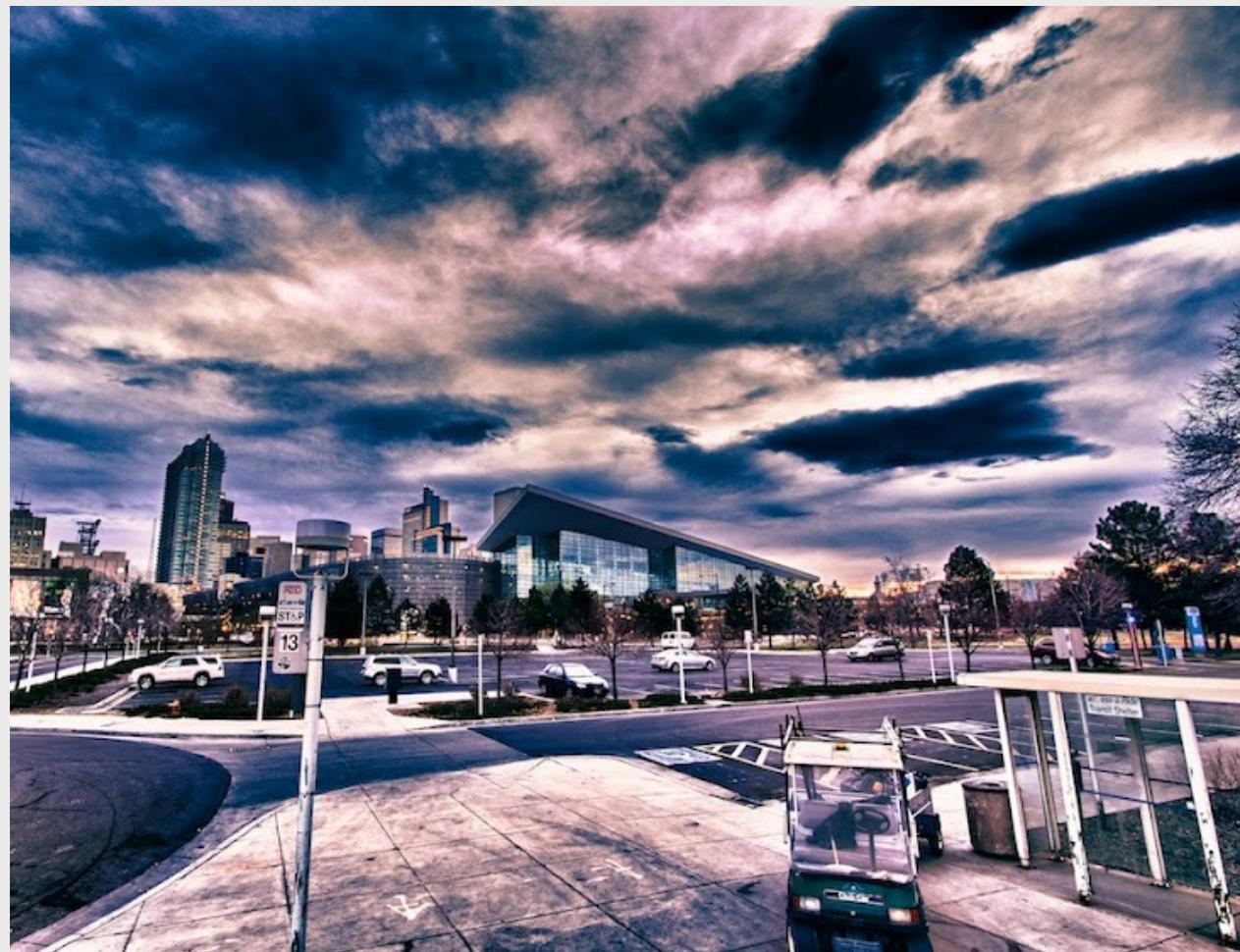


# Part I

Hello World!

**HELLO**  
**my name is**

# Background



- Metropolitan State University of Denver
  - Computer Science & Mathematics
- Coding Experience
  - Language Affinity / Experience
  - Previous “Real World” Positions?
- NCAR
  - Cool Scientific Research
  - S.U.P.E.R.
  - EOL-CDS-CTM / Erik Johnson

# Part II

## Cats and Conundrums



# The Problem



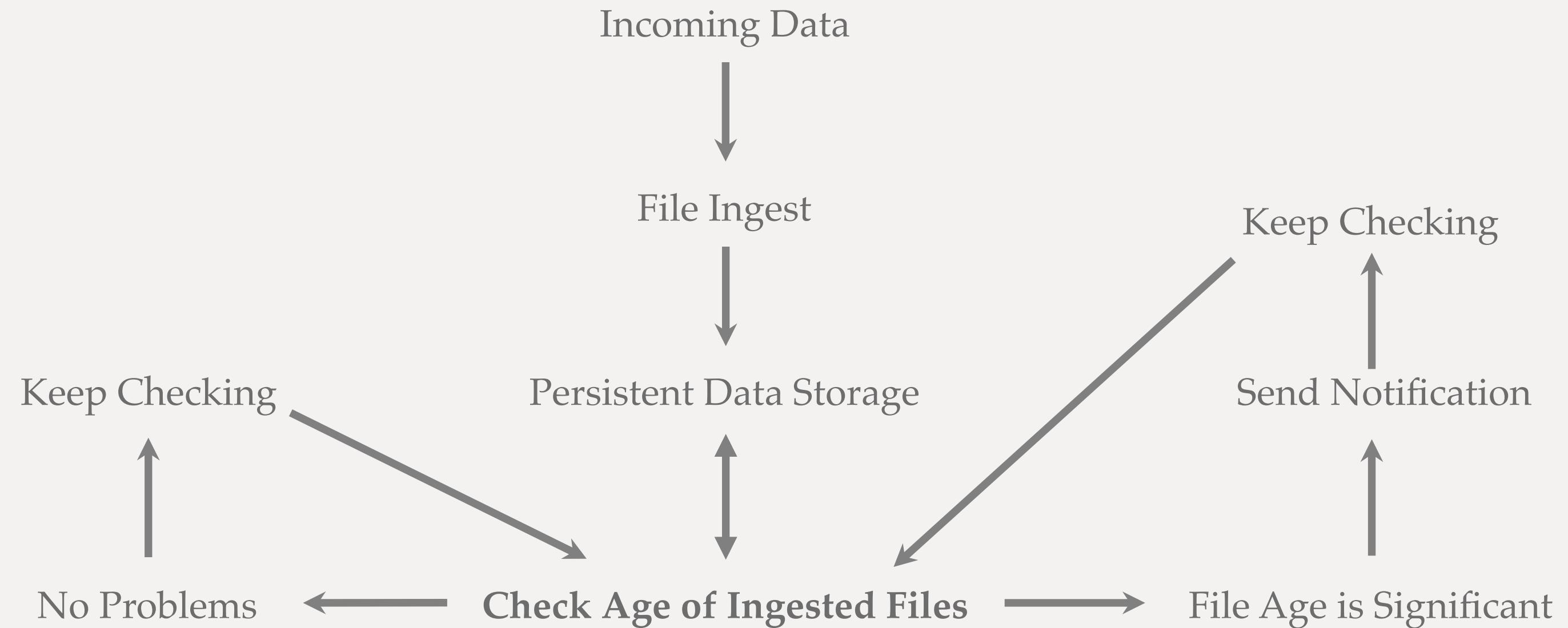
- Field Projects Produce Data
- Hundreds of Individual Products
- Data placed in persistent storage
- Problems During Ingestion
  - Data Never Arrives
  - Internal Database Issues
  - File Ingest Errors

# The Setup



- Ruby
- Nagios
- Git / GitHub
- IRC
- Rails / Active Record
- MySQL
- YAML

# The Approach



# The Results

## Script Commands

```
$ ./bin/check-file-feed-age -h

Usage: ./bin/check-file-feed-age [options]

Options:
  -y, --yaml <path>          Specify configuration file <path> for runtime settings
  -l, --label <name>           Specify verbose product label.
  -p, --path-strftime <path>  The file path, may include 'strftime'-stamps.
  -w, --warning <time>        Specify the file-age warning boundary as <DD:HH:MM:SS>
  -c, --critical <time>       Specify the file-age critical boundary as <DD:HH:MM:SS>
  -v, --verbose [<integer>]    Specify output verbosity as <integer>, 0-3
  -m, --many-files [<boolean>] Toggle many-files check algorithm via 'true' or 'false'
  -h, --help                   List all available options
```

# SCRIPT COMMANDS

## Rake Tasks

another large component of this program is it's ability to easily generate and move configuration files into place.

### Loading Data / Zith9 DB Interation

```
$ rake -T nagios:data:
rake nagios:data:load[file] # Load Nagios checks from YAML fixtures file.
rake nagios:data:unload[file] # Unload Nagios checks from YAML fixtures file.

rake nagios:config:deploy   # Deploy files to the deployment directory.
rake nagios:config:forward  # Move forward one deployment revision.
rake nagios:config:generate # Generate Nagios config files from zith9 database.
rake nagios:config:revert   # Revert back one deployment revision.
```

# CONFIGURATIONS

## Configuring Time Boundaries

### Vanilla Usage

```
$ ./bin/check-file-feed-age -w 4000 -c 8000 -p /some/test/file/data.mkz
```

### Advanced Usage

time definable in DAYS:HOURS:MINUTES:SECONDS

```
$ ./bin/check-file-feed-age -w 5:00:00 -c -w 8:00:00 -p /some/test/file/data.mkz
```

flags are optional, default values exist

```
$ ./bin/check-file-feed-age -c 1:05:30:6 -p /some/test/file/data.mkz
```

## YAML Usage

configurations can get pretty complex...

```
$ ./bin/check-file-feed-age -y config/products/some-yaml-config.yml
```

## Levels of Detail

boring...

```
$ ./bin/check-file-feed-age -p /usr/local/catalog/catalog-nagios/config.ru
Status: CRITICAL.
```

lets see some stats!

```
$ ./bin/check-file-feed-age -p /usr/local/catalog/catalog-nagios/config.ru -v 3 -l "Look I Made
Something"
Status: CRITICAL.
```

Feed Age: 4 days, 06:05:58

File Location: /usr/local/catalog/catalog-nagios/config.ru

Product label: Look I Made Something

Additional Comparison Information

Over warning bound by:	4 days, 05:55:58
Over critical bound by:	4 days, 05:50:58

Settings

Warning Bound:	00:10:00
Critical Bound:	00:15:00
Verbosity:	3

# OUTPUT

# Large File Systems on SCALE

## “Many Files”

what is that “many files” command?

lets look at a real product for this.

```
$ ./bin/check-file-feed-age -p /net/%DATESTAMP/research.Al_LMA.%DATETIMESTAMP.10minute_36kft.png -v 2
Status: CRITICAL.

Feed Age: 31 days, 08:16:18

File Location: /net/20120703/research.Al_LMA.201207031212.10minute_36kft.png
```

that took a long time! That's a problem. Nagios times out it's checks at around 10 seconds.

lets try the “many flags” feature.

```
$ ./bin/check-file-feed-age -p /net/%DATESTAMP/research.Al_LMA.%DATETIMESTAMP.10minute_12kft.png -v 2
-m true -c 45:00:00:00
Status: WARNING.

Feed Age: 31 days, 08:15:08

File Location: /net/20120703/research.Al_LMA.201207031212.10minute_12kft.png
```

whoah nice, that's quick! much quicker in fact, depending on the age of the file and the format of included timestamps, it can be several times faster.

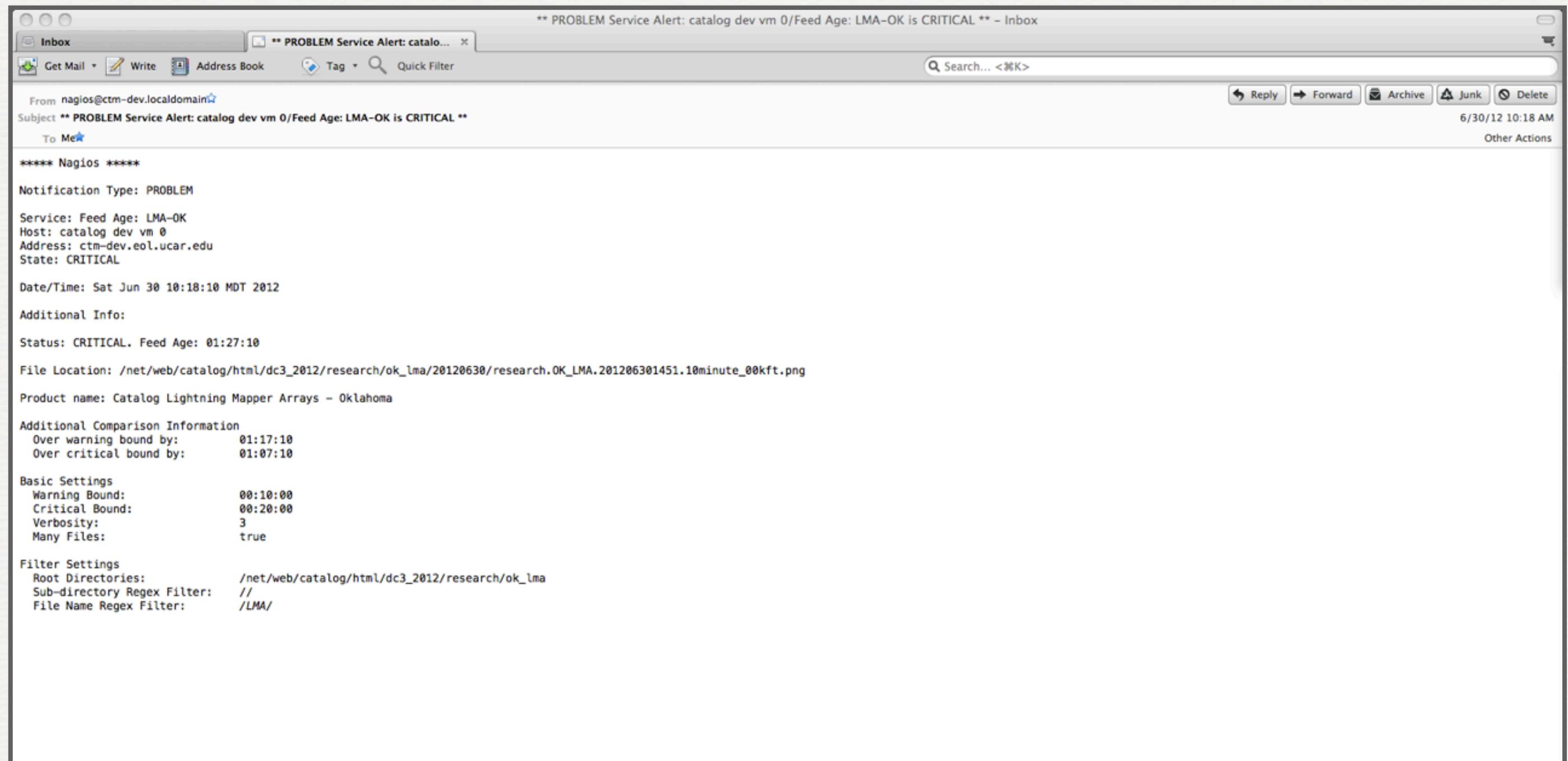
“many files” has it's downsides though, which is why we prefer to avoid “many files” on a default basis.

# Nagios Web Interface

The screenshot shows the Nagios Core web interface running in a Mac OS X browser window. The URL is <http://ctm-dev.eol.ucar.edu/nagios/>. The interface includes a navigation sidebar on the left with links for General, Current Status, Reports, and System. The main content area displays the Current Network Status, Host Status Totals (4 Up, 0 Down, 0 Unreachable, 0 Pending), Service Status Totals (5 Ok, 0 Warning, 0 Unknown, 2 Critical, 0 Pending), and a large table titled "Service Status Details For All Hosts". The table lists numerous services with their status, last check time, duration, attempt count, and status information. A specific entry for "Catalog HTTP" is highlighted in red, indicating it is CRITICAL.

Host	Service	Status	Last Check	Duration	Attempt	Status Information
ctm-dev	Catalog HTTP	CRITICAL	08-08-2012 16:42:01	0d 0h 3m 44s	2/3	HTTP CRITICAL: HTTP/1.1 503 Service Temporarily Unavailable - 580 bytes in 0.003 second response time
	Mission Coordinator latest_AL_lma.png	PENDING	N/A	0d 0h 0m 2s+	1/3	Service check scheduled for Mon Aug 6 16:44:16 MDT 2012
	Mission Coordinator latest_AI_vis.jpg	PENDING	N/A	0d 0h 0m 2s+	1/3	Service check scheduled for Mon Aug 6 16:44:49 MDT 2012
	Mission Coordinator latest_AI_fl_lma.png	PENDING	N/A	0d 0h 0m 2s+	1/3	Service check scheduled for Mon Aug 6 16:45:22 MDT 2012
	Mission Coordinator latest_CO_fl_lma.png	PENDING	N/A	0d 0h 0m 2s+	1/3	Service check scheduled for Mon Aug 6 16:45:56 MDT 2012
	Mission Coordinator latest_CO_lma.png	PENDING	N/A	0d 0h 0m 2s+	1/3	Service check scheduled for Mon Aug 6 16:46:29 MDT 2012
	Mission Coordinator latest_CO_vis.jpg	PENDING	N/A	0d 0h 0m 2s+	1/3	Service check scheduled for Mon Aug 6 16:47:02 MDT 2012
	Mission Coordinator latest_OK_fl_lma.png	PENDING	N/A	0d 0h 0m 2s+	1/3	Service check scheduled for Mon Aug 6 16:47:36 MDT 2012
	Mission Coordinator latest_OK_lma.png	PENDING	N/A	0d 0h 0m 2s+	1/3	Service check scheduled for Mon Aug 6 16:48:09 MDT 2012
	Mission Coordinator latest_OK_vis.jpg	PENDING	N/A	0d 0h 0m 2s+	1/3	Service check scheduled for Mon Aug 6 16:48:42 MDT 2012
	Mission Coordinator latest_WT_fl_lma.png	PENDING	N/A	0d 0h 0m 2s+	1/3	Service check scheduled for Mon Aug 6 16:49:16 MDT 2012
	Mission Coordinator latest_WT_lma.png	PENDING	N/A	0d 0h 0m 2s+	1/3	Service check scheduled for Mon Aug 6 16:49:49 MDT 2012
	Mission Coordinator latest_vis_4km.jpg	PENDING	N/A	0d 0h 0m 2s+	1/3	Service check scheduled for Mon Aug 6 16:50:22 MDT 2012
	WMS AL_LMA_10minute_composite_latest.txt	PENDING	N/A	0d 0h 0m 2s+	1/3	Service check scheduled for Mon Aug 6 16:50:55 MDT 2012
	WMS AL_LMA_10minute_composite_previous.txt	PENDING	N/A	0d 0h 0m 2s+	1/3	Service check scheduled for Mon Aug 6 16:51:29 MDT 2012
	WMS CO_LMA_10minute_composite_latest.txt	PENDING	N/A	0d 0h 0m 2s+	1/3	Service check scheduled for Mon Aug 6 16:52:02 MDT 2012
	WMS CO_LMA_10minute_composite_previous.txt	PENDING	N/A	0d 0h 0m 2s+	1/3	Service check scheduled for Mon Aug 6 16:52:35 MDT 2012
	WMS NEXRAD_3D_mosaic_06kft_CAPPI_latest.txt	PENDING	N/A	0d 0h 0m 2s+	1/3	Service check scheduled for Mon Aug 6 16:53:09 MDT 2012
	WMS NEXRAD_3D_mosaic_06kft_CAPPI_previous.txt	PENDING	N/A	0d 0h 0m 2s+	1/3	Service check scheduled for Mon Aug 6 16:53:42 MDT 2012
	WMS NEXRAD_3D_mosaic_12kft_CAPPI_latest.txt	PENDING	N/A	0d 0h 0m 2s+	1/3	Service check scheduled for Mon Aug 6 16:44:24 MDT 2012
	WMS NEXRAD_3D_mosaic_12kft_CAPPI_previous.txt	PENDING	N/A	0d 0h 0m 2s+	1/3	Service check scheduled for Mon Aug 6 16:44:57 MDT 2012
	WMS NEXRAD_3D_mosaic_18kft_CAPPI_latest.txt	PENDING	N/A	0d 0h 0m 2s+	1/3	Service check scheduled for Mon Aug 6 16:45:31 MDT 2012
	WMS NEXRAD_3D_mosaic_18kft_CAPPI_previous.txt	PENDING	N/A	0d 0h 0m 2s+	1/3	Service check scheduled for Mon Aug 6 16:46:04 MDT 2012
	WMS NEXRAD_3D_mosaic_24kft_CAPPI_latest.txt	PENDING	N/A	0d 0h 0m 2s+	1/3	Service check scheduled for Mon Aug 6 16:46:37 MDT 2012
	WMS NEXRAD_3D_mosaic_24kft_CAPPI_previous.txt	PENDING	N/A	0d 0h 0m 2s+	1/3	Service check scheduled for Mon Aug 6 16:47:11 MDT 2012
	WMS NEXRAD_3D_mosaic_30kft_CAPPI_latest.txt	PENDING	N/A	0d 0h 0m 2s+	1/3	Service check scheduled for Mon Aug 6 16:47:44 MDT 2012
	WMS NEXRAD_3D_mosaic_30kft_CAPPI_previous.txt	PENDING	N/A	0d 0h 0m 2s+	1/3	Service check scheduled for Mon Aug 6 16:48:17 MDT 2012
	WMS NEXRAD_3D_mosaic_36kft_CAPPI_latest.txt	PENDING	N/A	0d 0h 0m 2s+	1/3	Service check scheduled for Mon Aug 6 16:48:51 MDT 2012
	WMS NEXRAD_3D_mosaic_36kft_CAPPI_previous.txt	PENDING	N/A	0d 0h 0m 2s+	1/3	Service check scheduled for Mon Aug 6 16:49:24 MDT 2012
	WMS NEXRAD_3D_mosaic_42kft_CAPPI_latest.txt	PENDING	N/A	0d 0h 0m 2s+	1/3	Service check scheduled for Mon Aug 6 16:49:57 MDT 2012
	WMS NEXRAD_3D_mosaic_42kft_CAPPI_previous.txt	PENDING	N/A	0d 0h 0m 2s+	1/3	Service check scheduled for Mon Aug 6 16:50:31 MDT 2012

# Email Notifications



# Future Features

- Integrated Contact Configuration
  - Web Configurations Interface
  - Dynamically Handle Visually Checked Data

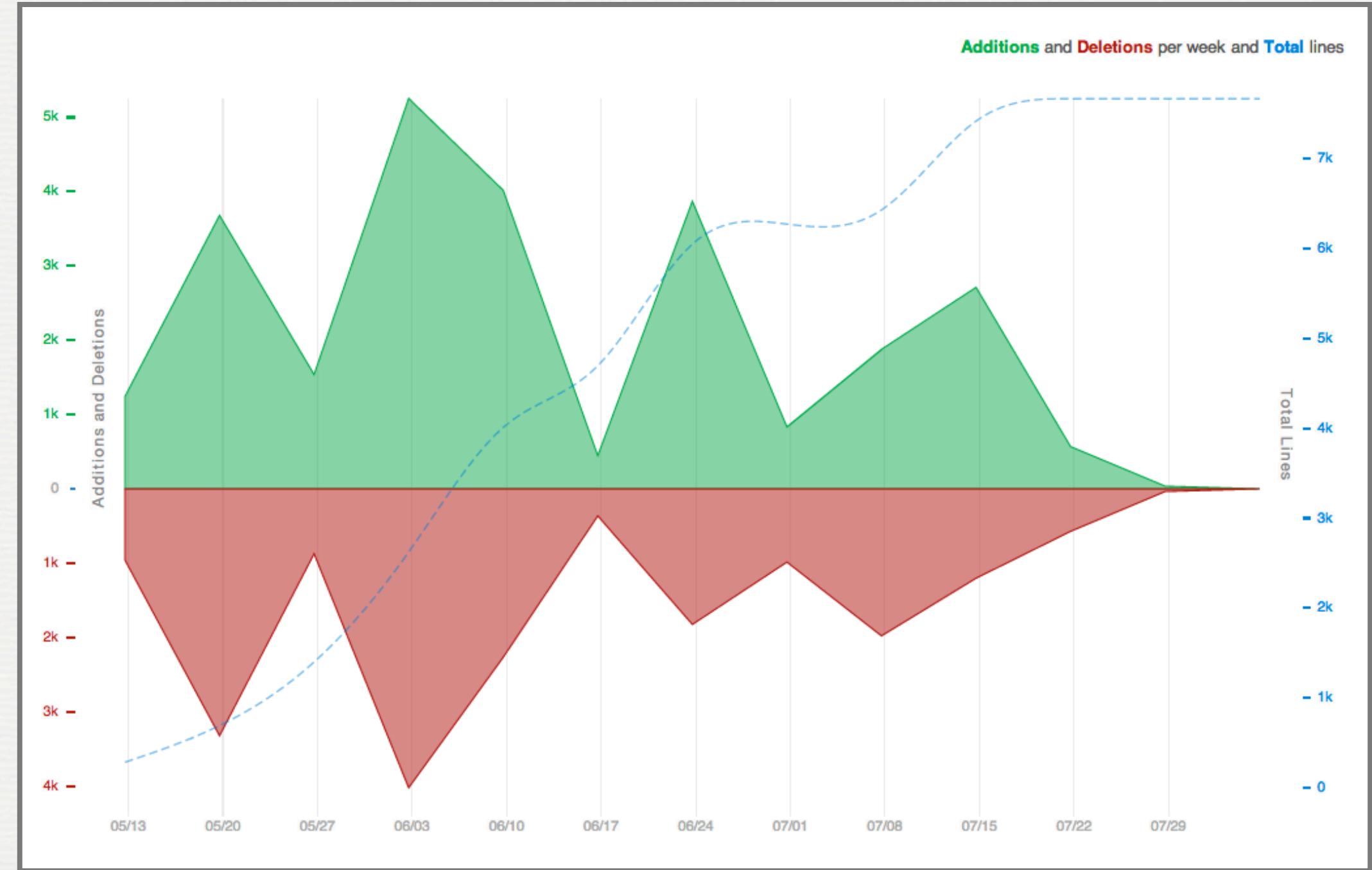
```
Selection Find View Goto Tools Project Window Help (3:37) Mo
nagios.rake config.rake
:sys001
1 |require 'catalog_models'
2
3 ▼ namespace :nagios do
4
5   desc "A helper / prerequisite task for loading the 'nagios.yml' deploy / revert path."
6   task :load_config do
7     begin
8       @config = { 'nagios'=>{} }
9       @config['nagios']['deploy_path'] = FileUtils.mkpath((YAML.load_file "config/nagios.y
10      rescue
11        abort ">> ERROR: There was a problem loading configuration: #{$!}"
12      end
13    end
14
15 ▼ namespace :config do
16
17   # 'rake nagios:config:generate[<project_id>]'
18   desc "Generate Nagios config files from zith9 database."
19   task :generate do
20
21     prepare_generation_directory
22     project_names = extract_nagios_services
23     generate_servicegroups project_names
24
25     puts ">> Nagios configuration files have been generated to '#{@generation_directory_path}'"
26     puts ">> WARNING: Your config files are not deployed yet. Use: 'rake nagios:config:deplo
27   end
28
29   # 'rake nagios:config:deploy[<project_id>]'
30   desc "Deploy files to the deployment directory specified in 'config/nagios.yml'."
31   task :deploy => [:load_config] do
32     timestamp = Time.now.strftime('%Y%m%d%H%M%S')
33
34     prepare_deployment_directory timestamp
35     deploy_files timestamp
36     generate_symlink timestamp
37
38     puts ">> Config files have been deployed from: '#{@generation_directory_path}' to '#{@dep
39     puts ">> WARNING: Your config files are not loaded yet."
40     puts " Verify: 'sudo service nagios checkconfig'"
41     puts " Load: 'sudo service nagios restart'"
42   end
43
44   # 'rake nagios:config:revert'
45   desc "Revert back one deployment revision."
46   task :revert => [:load_config] do
47     begin
48       past = current_revert_path <
49         generate_symlink (extract_timestamp past)
50
51     end
52
53   end
54
55   # 'rake nagios:config:current'
56   desc "Get the current deployment revision path."
```

# Challenges / Retrospective

- What Went Well?
  - Having a Mentor
  - Version Control
    - Branch Workflow
  - Issue-Driven Development
- Challenges
  - Dealing with Time
  - Minimizing SCALE interaction
  - Elegant Solutions
  - Details

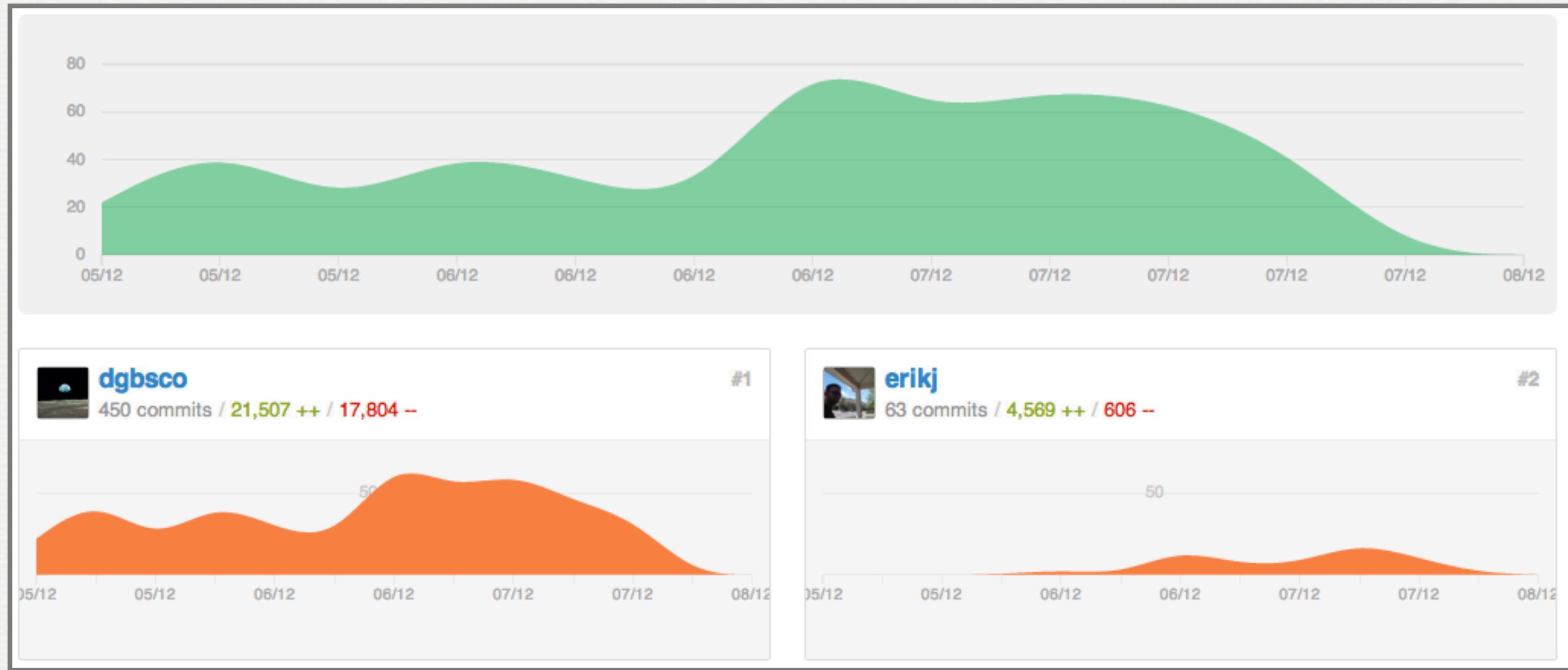
# Development Stats

## Code Frequency



# Development Stats

## Contributions



Thanks!