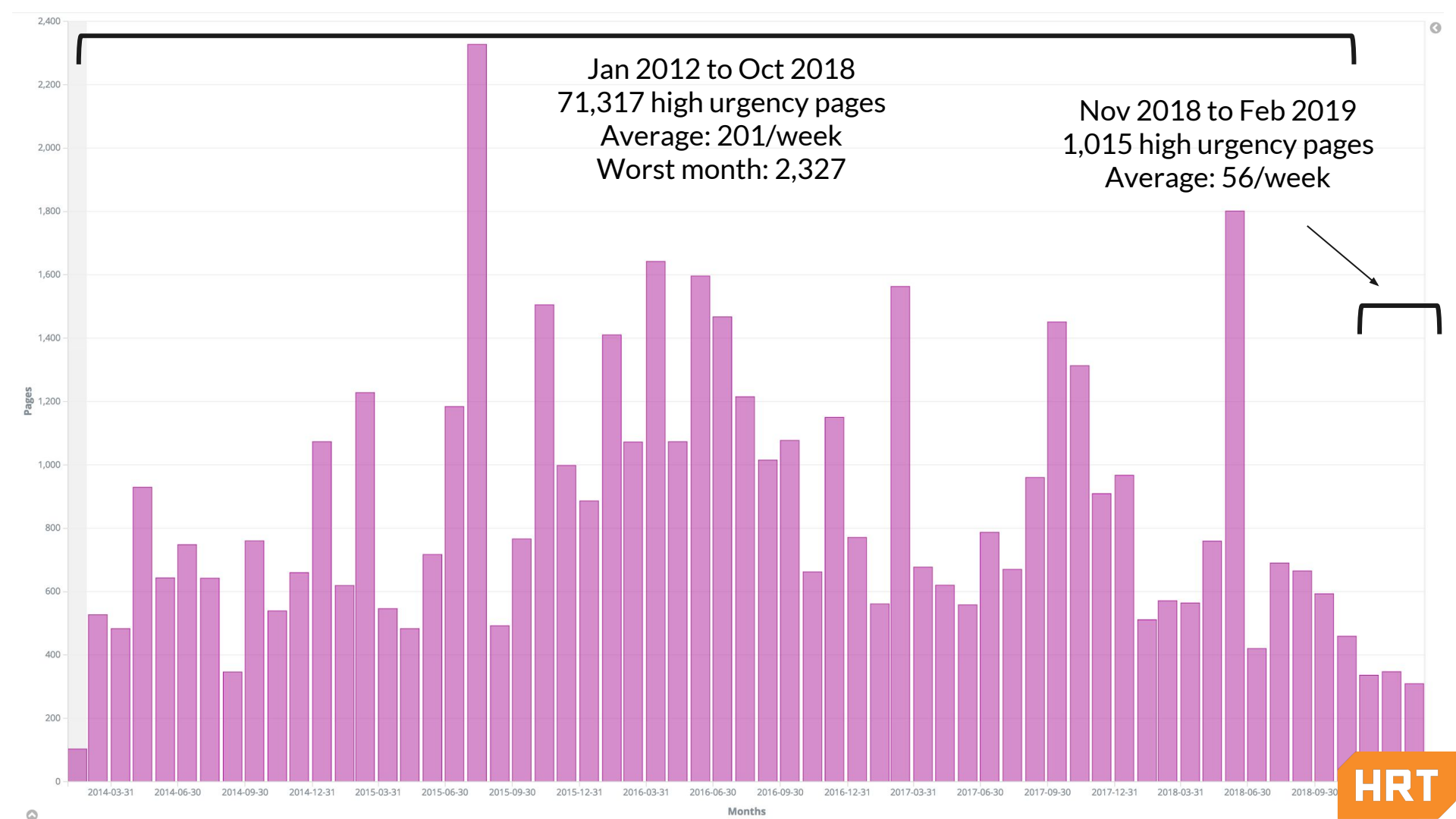
# Fixing On-Call When Nobody Thinks it's (too) Broken

Tony Lykke
Hudson River Trading

HRT


Jan 2012 to Oct 2018
71,317 high urgency pages
Average: 201/week
Worst month: 2,327
Nov 2018 to Feb 2019
1,015 high urgency pages
Average: 56/week
Pages
2,400
2,200
2,000
1,800
1,600
1,400
1,200
1,000
800
600
400
200
0
2014-03-31
2014-06-30
2014-09-30
2014-12-31
2015-03-31
2015-06-30
2015-09-30
2015-12-31
2016-03-31
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2016-09-30
2016-12-31
2017-03-31
2017-06-30
2017-09-30
2017-12-31
2018-03-31
2018-06-30
2018-09-30
Months

# What This Talk is (not)

**IS:**

- Guide to reducing pager noise

**IS NOT:**

- Explanation of why you should

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# What This Talk is (not)

**IS:**

- General advice you can (hopefully) apply regardless of platform

**IS NOT:**

- Technical deep-dive into Nagios and PagerDuty

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# A Brief History

Atlassian (Sydney)

- Service Ops (SOPS)
- Jira SRE

Hudson River Trading (NYC)

- Trade Systems SRE




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# HRT at a Glance

Automated trading firm

>5% of daily US equities volume

Milliseconds are slowwww

Everything is quantifiable

~300 people across 10 offices

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# Trade Systems Overview

Thousands of machines

Tens of colos

Hundreds of pages per week

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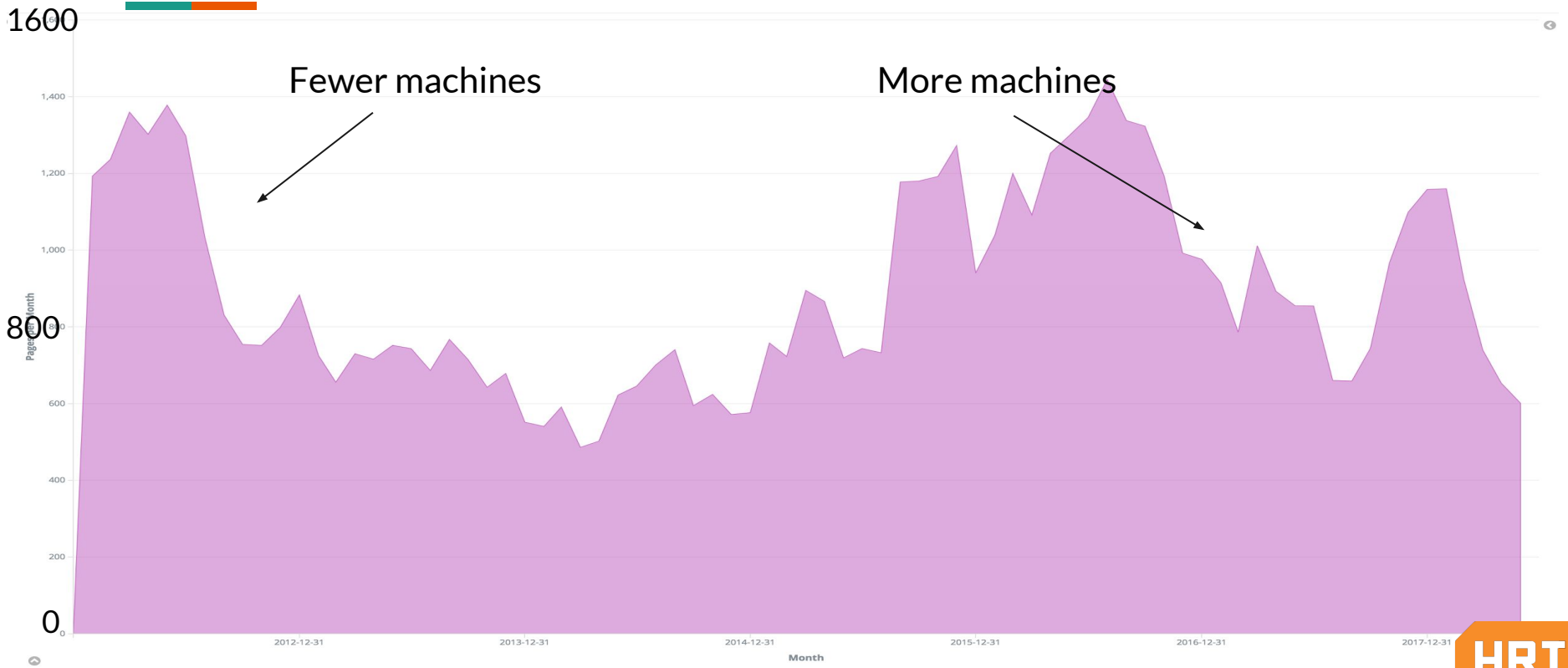
# Hundreds of Pages a Week



# Me: “You don’t have to get paged so much”

# Them:



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# Why?

“That’s just how it’s always been”

“Each of our colos is configured slightly differently, so it’s hard to set good thresholds”

“Reducing noise that much just isn’t realistic without Big Corp™ resources”

“It’s better than it used to be”

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# 9 Really Hard Steps to Reduce Pager Noise

1) Understand your audience
2) Understand the problem
3) Understand the system
4) Devise a game plan
5) Get permission (optional)
6) Lay the groundwork
7) Fix the lowest hanging fruit
8) Communicate, communicate, communicate
9) GOTO 7

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# Step 1: Understand Your Audience

Stockholm syndrome + alert fatigue = ???

Culture of alerts meaning things are working

Disagreement that this “problem” is fixable

Priorities not aligned

Preference for conservative approaches

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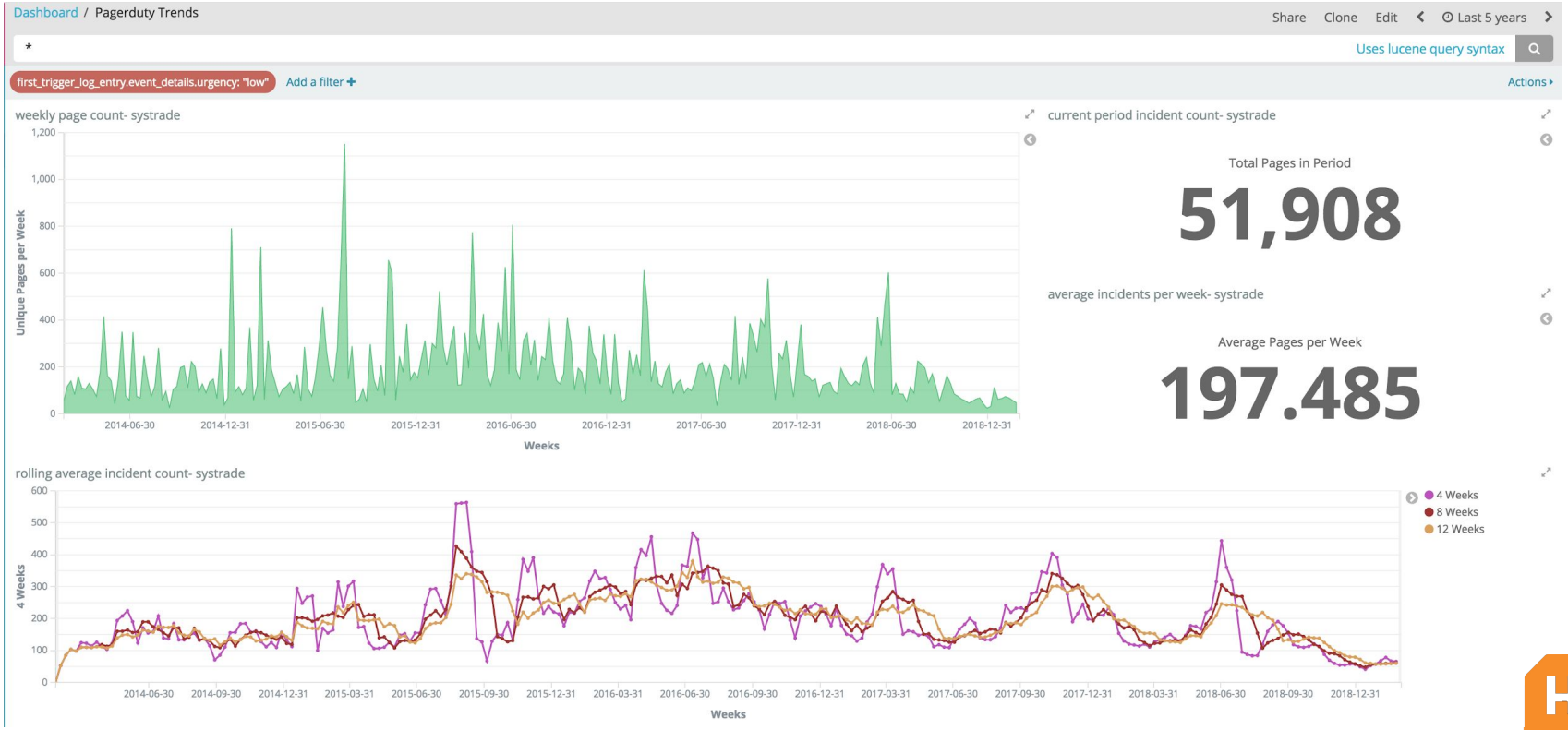
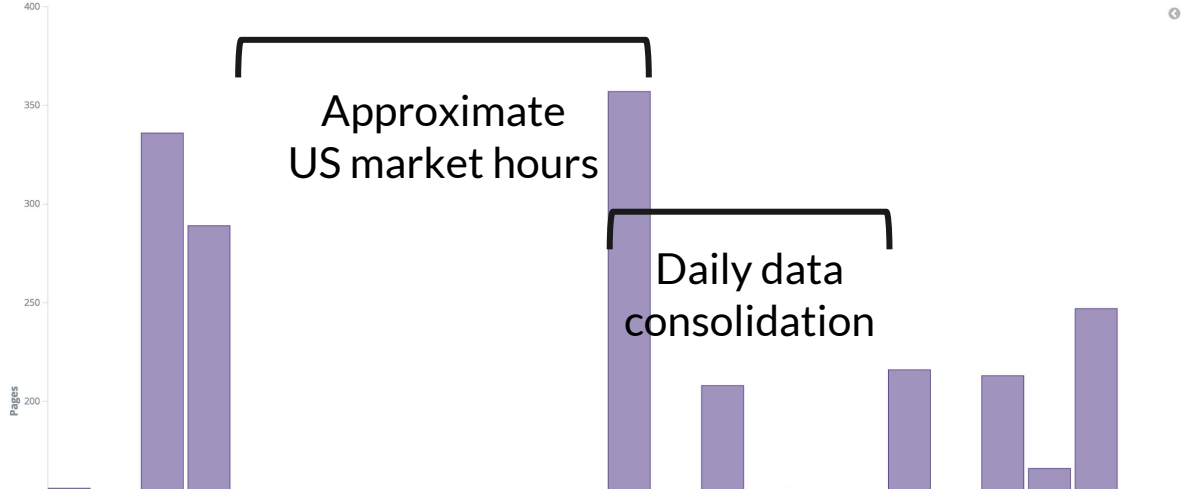
# Step 2: Understand the Problem

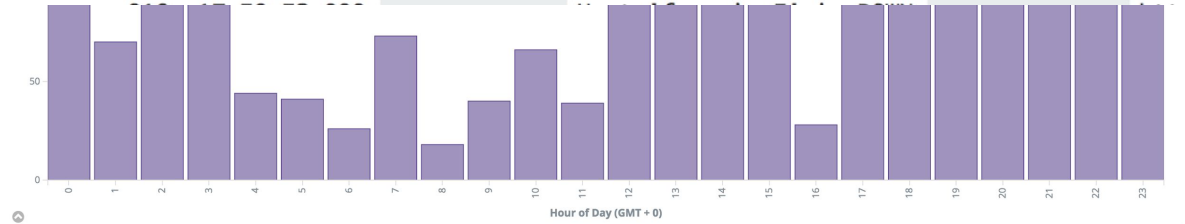


# Step 2: Understand the Problem




Time _source

July 17th 2018, 17:58:52.000 first_trigger_log_entry.channel.cef_details.details.HOSTOUTPUT: (Host Check Timed Out) status: res

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# Step 3: Understand the System

Nagios 3

30 satellites, 40,000+ checks

200,000 lines of configuration

Huge amounts of stale and duplicated config

Manually deployed via rsync

Adding or changing checks tedious and error-prone



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# Step 4: Devise a Game Plan

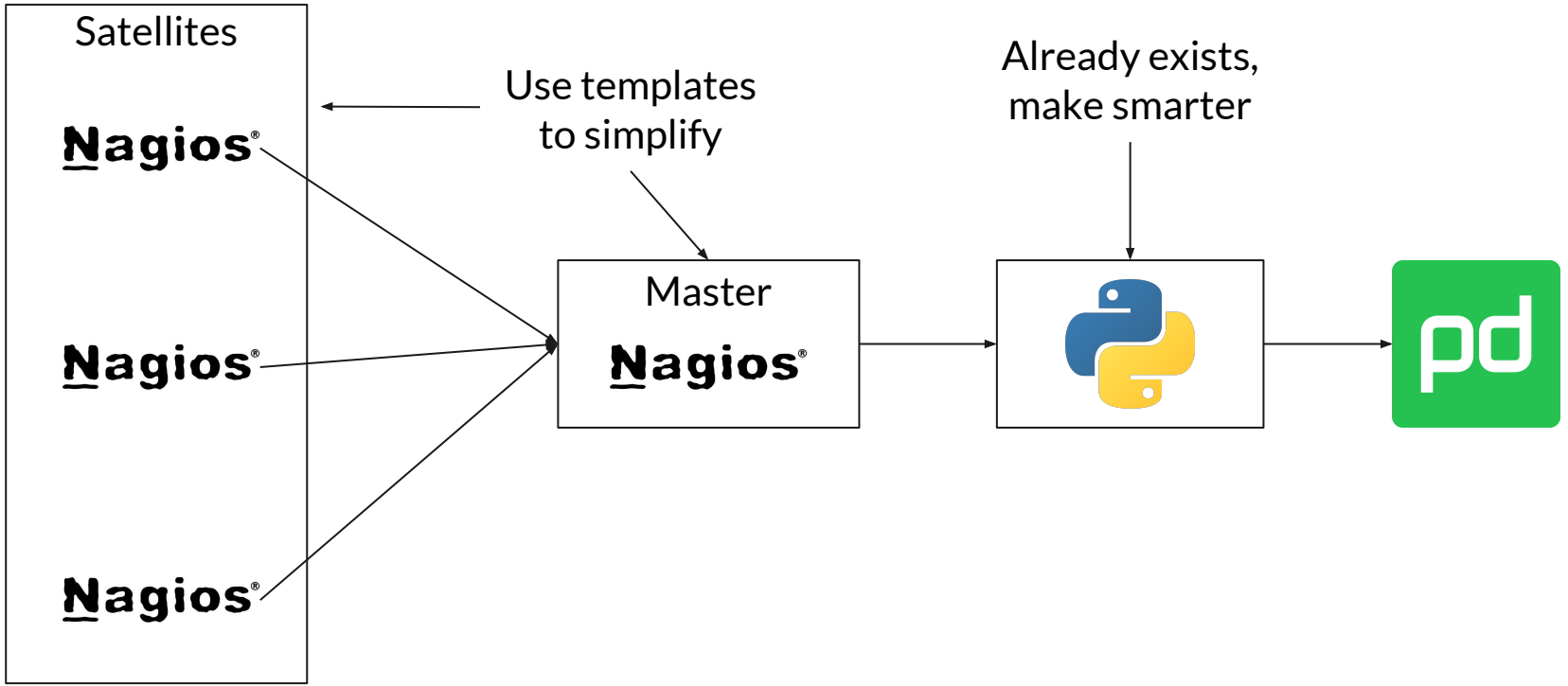
Doesn’t have to be comprehensive

Low risk and high impact changes first

Communicate the plan and ask for feedback

Listen to the data

# Step 4: Devise a Game Plan



# Step 5: Get Permission (Optional)

Ask for forgiveness instead of permission?

Use the data you've collected.

Does your team collect you?

15-20 minutes per page that is not outright ignored

How long until they ask questions?

Be annoying, have answers

Will you have answers?

Pages / ... / Nagios

# Deploying Nagios Configuration Changes

Created by Tony Lykke, last modified by Taylor Legg on Nov 21, 2018

Blog / 2018 / November / 05

# 2018-11-04 Postmortem: Nagios outage

Created by Tony Lykke, last modified on Nov 06, 2018

## Overview

Nagios on `shmonitor6` was not successfully processing all check results, and hence dropping some or all notifications for SysTrade, for around 21 hours
Nagios → PagerDuty alerts processing alerts slower than Nagios was attempting to send them, resulting in a Nagios backlog which manifested as forked p


    - Normal Case
    - Force a Deploy
- Rolling Back a Release
- Disabling Automatic Deployments
- Deploying From a Branch
- Deploying When Bamboo is Unavailable

# Step 6: Lay the Groundwork

Neglect creates technical debt

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# Step 6: Lay the Groundwork

Neglect creates technical debt

Standardise config

```
↳ git shortlog -s -n | rg -n Tony
26:     5       Tony Lykke
```

```
↳ git shortlog -s -n | rg -n Tony
7:   765        Tony Lykke
```

Templated 15k lines of duplicate config

Automated build and deploy

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# Step 7: Fix the Lowest Hanging Fruit

**Minimise:**

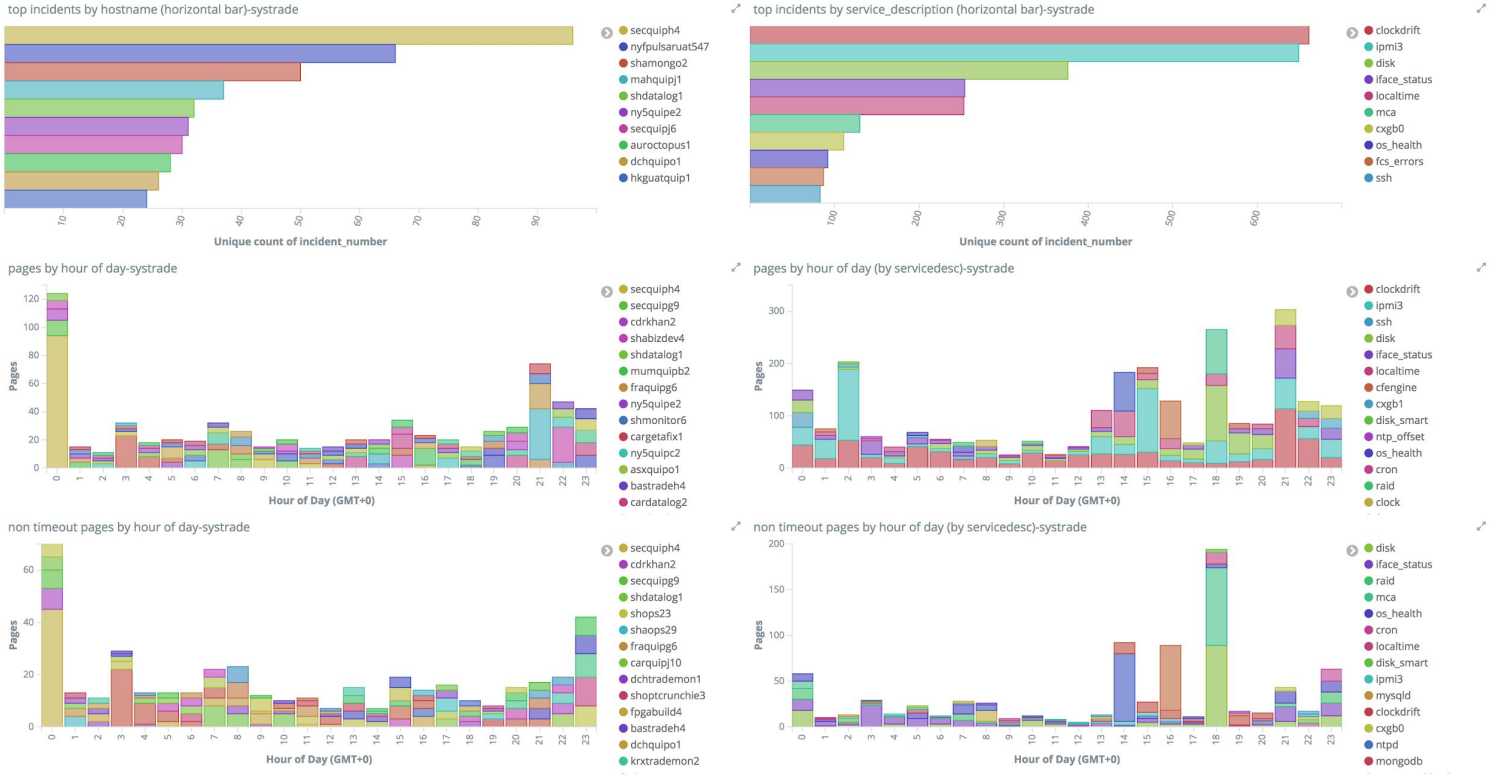
Risk

Time

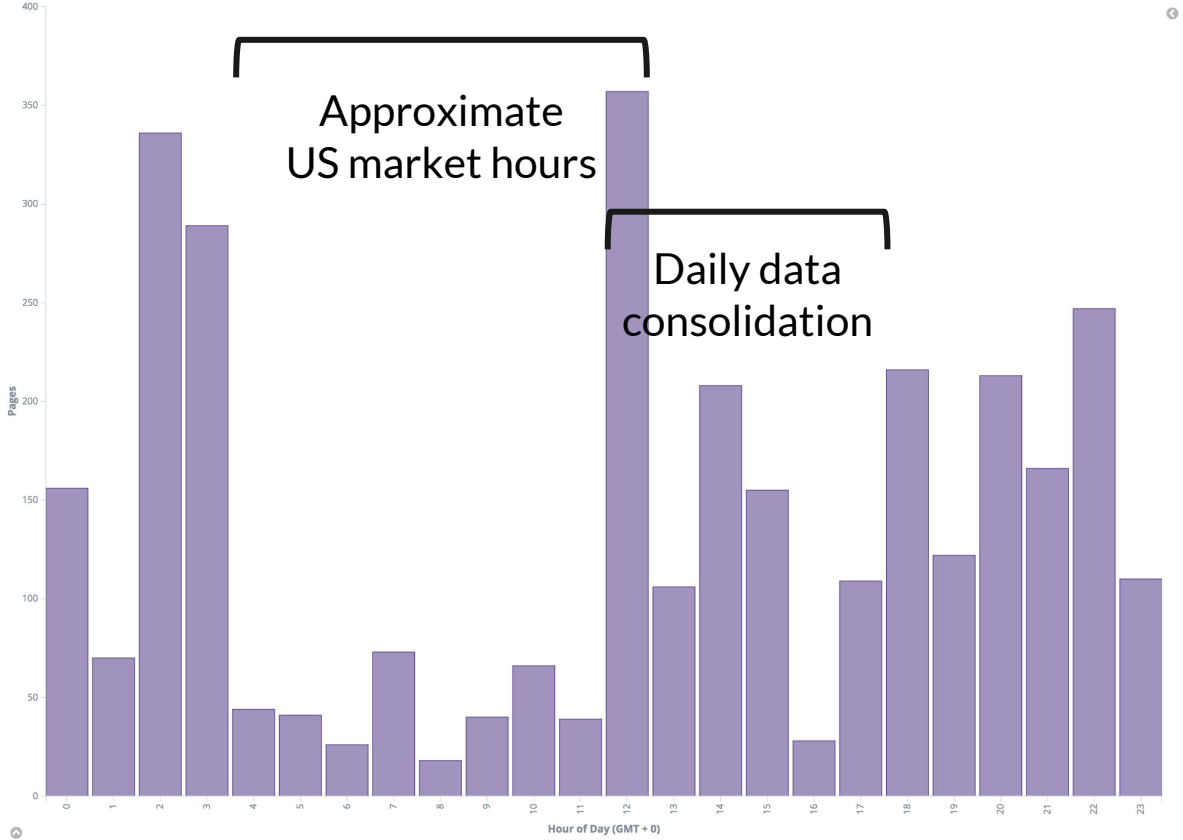
**Maximise:**

Impact

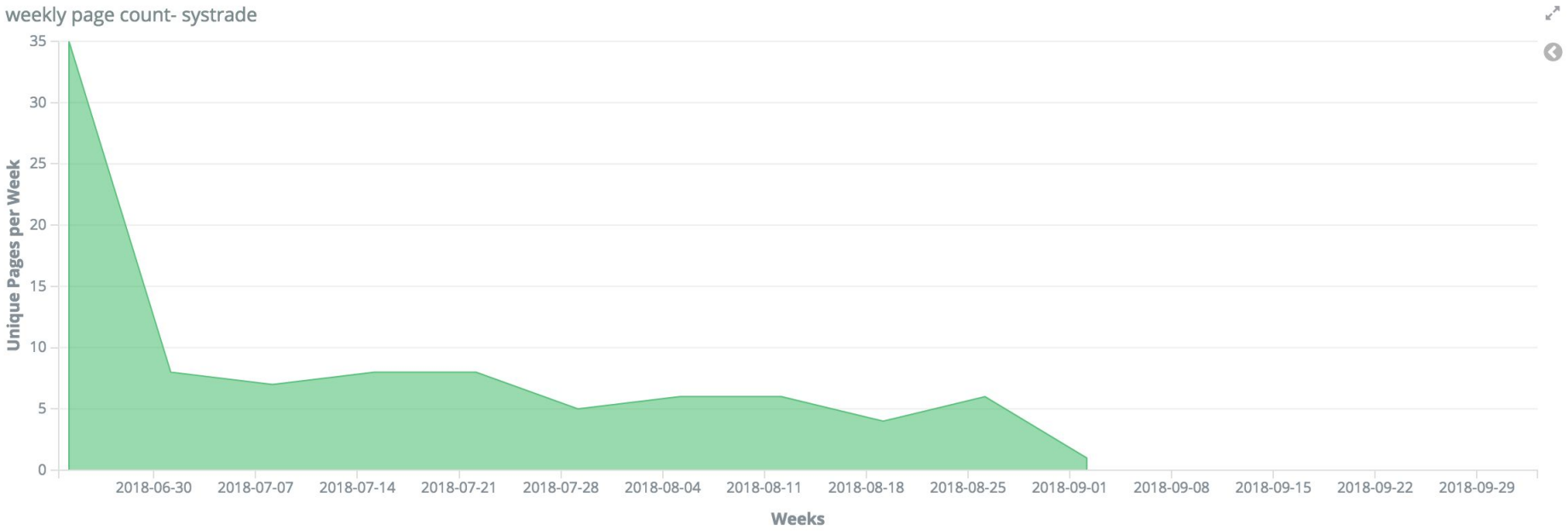
# Step 7: Fix the Lowest Hanging Fruit



# Step 7: Fix the Lowest Hanging Fruit



# Step 7: Fix the Lowest Hanging Fruit






“What’s it feel like to be a hero?”

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# Step 8: Communicate, Communicate, Communicate

Blog posts

RFCs

Documentation

Comprehensive pull request messages

Documented rollout plans

???




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# Step 8: Communicate, Communicate, Communicate

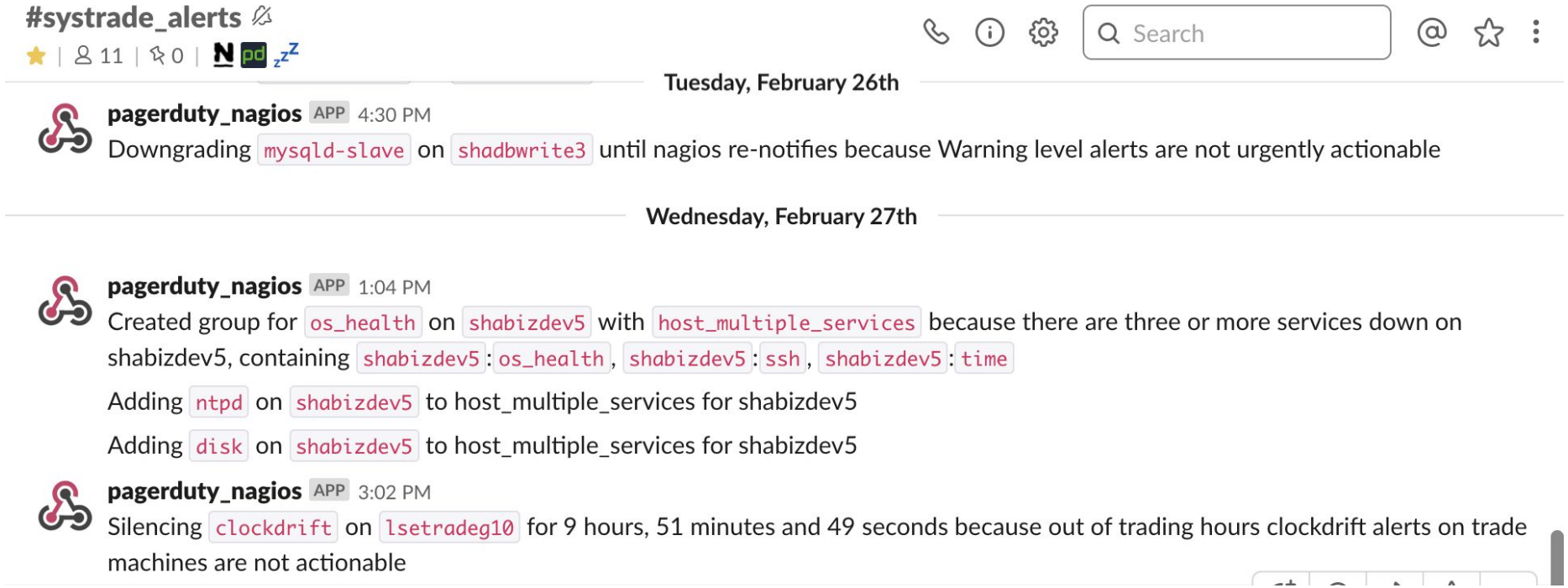
Silence made people uncomfortable

Decade of alerts being ok

Needed to wean our team off the noise



# Step 8: Communicate, Communicate, Communicate



# Step 9: GOTO 7

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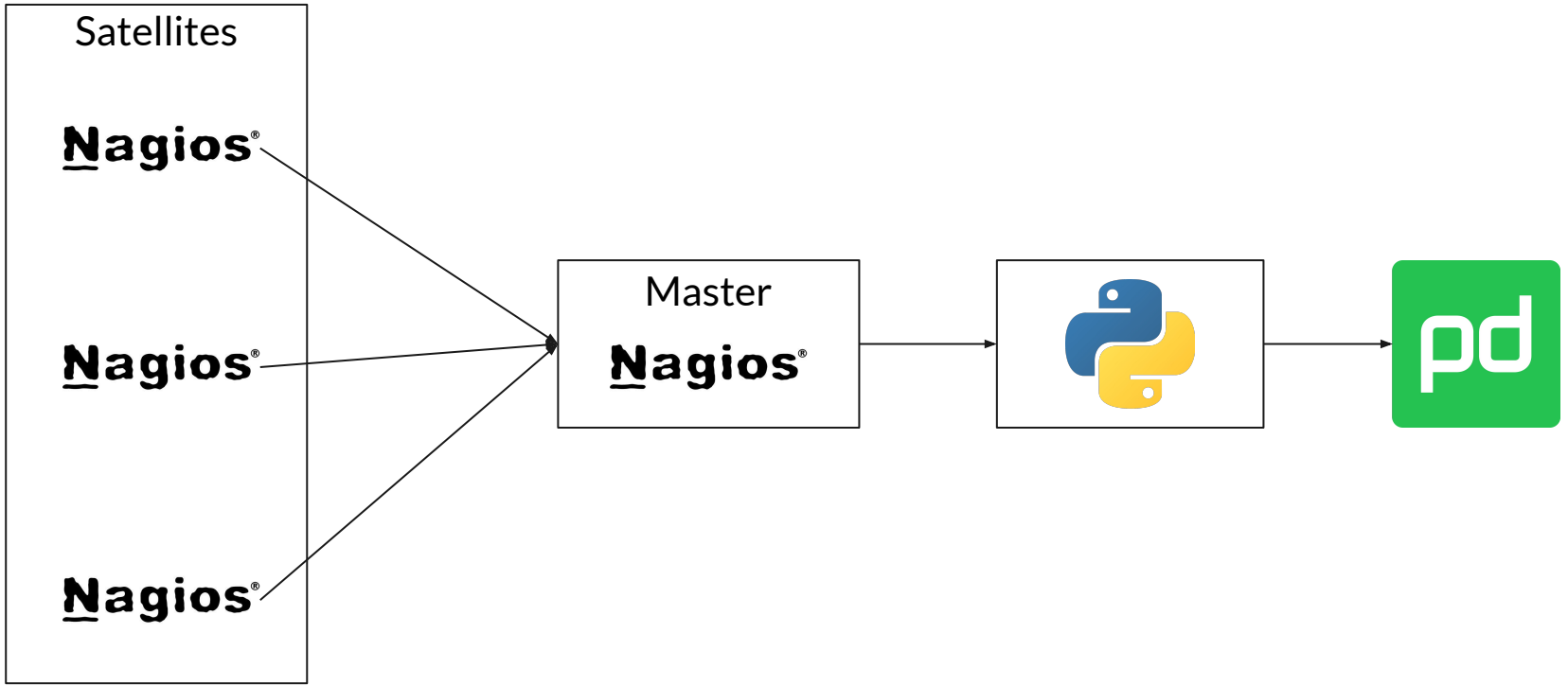
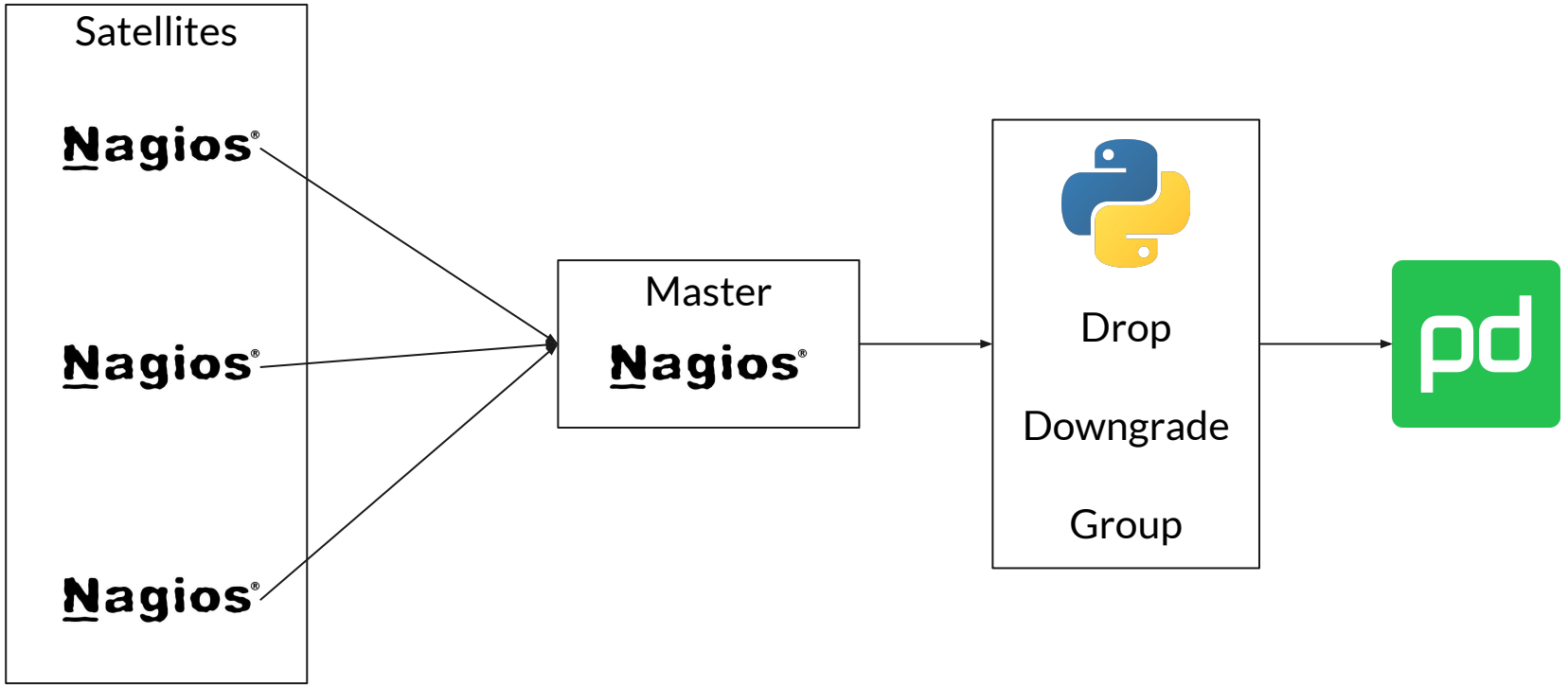
# Then vs Now



# Then vs Now


Satellites
Nagios
Nagios
Nagios
Master
Nagios
Drop
Downgrade
Group
pd

# Ten Second Review

Gather data

Review data

Make a plan

Communicate

???

Talk at SREcon about it

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# Sound Fun? We're Hiring

Come talk to us at our booth! We're at: Booth 41, Northside Ballroom

Visit our careers page: hudson-trading.com/careers

hi@tonylykke.com

@tl on SREcon Slack

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