Low-Context DevOps:
A new way of improving SRE team culture
Introduction
Who is Tom Limoncelli?

- Pronouns: he/him
- SRE Manager at Stack Overflow, Inc (NYC)
- Sysadmin since 1988 (Google, AT&T/Bell Labs, Mentor)
- Blog: EverythingSysadmin.com  Twitter: @YesThatTom
- Author
10 billion
Page views in 2019

100+ million
Unique visitors in 2019

stack overflow
Foreshadowing
1. High and low context cultures
2. Low context DevOps
3. Leadership
Our common challenge
1. High and Low Context Cultures
High Context Cultures

A party with friends, family gatherings, expensive gourmet restaurants with a regular clientele, undergraduate on-campus friendships, hosting a friend in your home overnight

- Communication is implicit. Less written/formal information; more collective history
- People have to “read between the lines” to understand what’s going on
- Relies on long term relationships
- Decisions and activities focus around personal face-to-face relationships, often around a central person who has authority
Low Context Cultures

Large airports, a chain supermarket, a cafeteria, a convenience store, sports where rules are clearly laid out, a motel

- Communication is explicit
- There are rules, you are told the rules
- Knowledge tends to be codified, public, external, and accessible
- More interpersonal connections of shorter duration
- Knowledge is more often transferable
High Context
All meaning is not conveyed in the language

Chinese languages
Japanese
Arabic
Indian languages
Greek
Spanish
Italian
English
French
American
Scandinavian languages
German/Swiss
Dutch

Low Context
Most meaning is expressed by the specific words

https://www.slideshare.net/trompenaars/tht-iap-certification-presentation-day1-6dec2010
2. Low Context DevOps
A DevOps environment should strive to be low-context
Three ways to reduce the required context of your DevOps env

- New Employee Environment
- Design it low-context
- Constant context reduction
New Employee Environment
New Employee Environment

- PC
- Software required to do your job
- Access and Permissions
Why this stays broken?

- New employees can't fix it.
- Experienced employees don't feel the pain.
- Requires working across silos: IT, InfoSec, Eng, HR
- Who will do this if you don't?
Low Context Design
Make Right
Easy
The lazy path guides you to the right way
**Good**

LibreSSL:
The default is “timelessly correct”

Our CI/CD pipeline embodies our recommended practices

Base library institutes telemetry collection, standard flags, etc. Not being standard is difficult!

**Bad**

OpenSSL:
Requires PhD to use right, stale settings
Foundational Tools

Your foundational tools and infrastructure make or break your ability to provide a low context environment.

- Ticket system
- Bug tracking system
- Monitoring / observability
- Config management
- OS Installation and Patching

- CI/CD Pipeline system
- Container / artifact repository
- Documentation repository
- Source code control
- Chat & Collaboration Infrastructure
Constant Context Reduction
Ubiquitous Documentation
Docs when you need them

A deep link / URL:

- In error messages
- In CI/CD control panel descriptions
- In alert messages
- Everywhere people might want info!
Last login: Fri Feb 14 07:53:59 on ttys004

The default interactive shell is now zsh.
To update your account to use zsh, please run `chsh -s /bin/zsh`.
For more details, please visit https://support.apple.com/kb/HT208650.

timwork2:~ timoncelli$
Create a culture of ubiquitous documentation
Management sets expectations

- It’s not done until it’s documented
- Not just big projects: Tickets, chatops, releases

Culture of always updating as you work

- “Manual Work is a Bug”
- https://queue.acm.org/detail.cfm?id=3197520

File bugs about docs just like software

- Record tech debt or it won’t be fixed
- Stale documentation is dangerous

Fight the “my code is the documentation”

- At a minimum, you need a doc to point to the code! (or how to get started)
Need inspiration?
Document so you can relax while on vacation.
Docs?

What docs?
404 Not Found
Raise your hand if you love to write documentation
Why people avoid writing documentation
Uncertain Scope  Uncertain Audience  And ...
Blank Emacs document
Blank Sublime
Blank dark mode
Blank screen syndrome
“While not a recognized medical condition, Blank Screen Syndrome is a very real problem.”
Really awesome templates

**Service Doc Template:**
- Overview
- Useful links
- High-level diagram
- History/Background
- Desired State
- Common Issues

**Alert Doc Template:**
- Failure condition
- Business impact
- Escalation chain
- Suggested resolution (checklist)

The Practice of System and Network Administration, 3rd Edition, Chapter 31

The Practice of Cloud System Administration, Chapter 17
Write in small batches!
Include doc updates in work estimates
Where do engineers already write?

When someone writes a great description of something, tell them to paste it into something more permanent!

- Email
- Chat
- Instant message
How do I exit the Vim editor?

I'm stuck and cannot escape. It says:

```
:type :quit<Enter> to quit VIM
```

But when I type that it simply appears in the object body.

---

**Specific scope**

**Clear audience**

**Template and wizard**
Foreshadowing
<table>
<thead>
<tr>
<th>Tag</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>talent</td>
<td>Stack Overflow Talent, our employer facing hiring platform</td>
</tr>
<tr>
<td>so-enterprise</td>
<td>our private Q&amp;A product for organizations of 500+ technical staff</td>
</tr>
<tr>
<td>so-for-teams</td>
<td>Questions about Stack Overflow for Teams - our private Q&amp;A product for</td>
</tr>
<tr>
<td></td>
<td>groups of 2-500 developers</td>
</tr>
<tr>
<td>so-for-business</td>
<td>Questions about the Business tier of Stack Overflow for Teams.</td>
</tr>
<tr>
<td>data-team-request</td>
<td>on questions which are small asks for the Data Team.</td>
</tr>
<tr>
<td>community</td>
<td>For questions about anything that touches Q&amp;A community users</td>
</tr>
<tr>
<td>salesforce</td>
<td>A Platform-as-a-Service development environment delivered on Salesforce.com, the platform is more correctly referred to as Force.com. A...</td>
</tr>
<tr>
<td>customer-support</td>
<td>Manage subject matter experts</td>
</tr>
<tr>
<td>community</td>
<td>Manage subject matter experts</td>
</tr>
<tr>
<td>community</td>
<td>Manage subject matter experts</td>
</tr>
<tr>
<td>billing</td>
<td>the process of sending a bill to a customer</td>
</tr>
<tr>
<td>email</td>
<td>for questions involving code to send or receive email messages. Posting to</td>
</tr>
<tr>
<td></td>
<td>ask why the emails you send are marked as spam is off-topic for Stack...</td>
</tr>
<tr>
<td>security</td>
<td>Topics relating to application security and attacks against software. Please</td>
</tr>
<tr>
<td></td>
<td>don't use this tag alone, that results in</td>
</tr>
</tbody>
</table>

✅ New employees can use it.

✅ Experienced employees feel/see the pain.

✅ Works across silos: IT, InfoSec, Eng, Marketing
3. Leadership
But who will make it happen?
But who will make it happen?
Management vs. Leadership
Management is:

- Set priorities
- Provide resources
- Clear roadblocks
Leadership is:

- Going first
- Making it easy for others to follow
In summary...

**DevOps environments should strive to be low context**

**Tip #1: Smart Defaults**
- ✔ New Employee Env: Accelerate new hires being productive

**Tip #2: Make Right Easy**
- ✔ The lazy path should fulfill recommended practices
- ✔ Foundational Tools (CI/CD, Git, etc.)

**Tip #3: Ubiquitous Documentation**
- ✔ A culture of documentation
- ✔ Management support
- ✔ Small batches: Write as you work, not after
- ✔ Inspiration: Helps the team; reduces the likelihood you’ll get paged while on vacation
In summary...

Why we don’t write docs?

- The burden of “audience” and “scope”
- Scary blank screen syndrome

How to fix:

- Templates, templates, templates
- Repurpose text from where they already write (Email, Chat rooms, IM, StackOverflow)
- Central source: stackoverflow.com/teams
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