



# Growing Strong Technical Teams in Small Internet Companies

(why you might decide that your next technical manager  
should be a teacher, not an engineer)

**Joe Abley, SANOG 28, Mumbai**

1 August 2016

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# Joe Abley, Management Consultant

- Director of Infrastructure at Dyn, Inc
  - Internet Performance Management, offices in APAC, EMEA, North America, 400 staff, 18 data centre locations
- I manage the network engineering and data centre engineering teams (actually, I manage their managers)

# Joe Abley, Teacher

- Volunteer instructor at the Network Resource Startup Center (NSRC)
- provides direct engineering assistance and technical capacity building globally
- First engagement was at AfNOG 2003 in Kampala, Uganda



# Audience Participation, Part 1

Are technical teams fundamentally different from any other kind of team in a small company?

# Audience Participation, Part 2

Are Internet companies fundamentally different from other kinds of company?



# Case Study 1



# Case Study 1

- 50 participants in the team, split into half a dozen or so smaller groups variously working independently and together
- Young, mainly inexperienced contributors (some with some experience of similar projects in prior years)
- No scheduled time available in the work day, so all work needs to be completed before or after normal hours

# Case Study 1

- Fixed deadlines, much anticipation of high-quality results being delivered on-time (six months lead to delivery in May 2016)
- Some part-time, borrowed, part-time management (effectively volunteer)
- **One manager**
- Delivered on-time, great success with target audience



# Case Study 1



"Shrek the Musical" – Lord Roberts French Immersion  
Public School, London, Ontario, Canada, May 2016

# Case Study 1

- All the people we talked about earlier are aged between 8 and 14
- All practices and rehearsals were before school or after school
- Actors, singers, dancers, stage managers, lights, scenery, costumes, audio, all done by children
- Six performances
- **One teacher**



# Case Study 2



# Case Study 2

- Also from 2016 (also involving Harriet's school)
- Thirty grade 5 children, aged 10/11
- Two teachers, two parent volunteers
- University of Western Ontario Department of Engineering
  - two engineering students



# Case Study 2

- Load the bus, drive to the University, find the department
- Q&A on what Engineering is, facilitated by Western students, focusing on the iterative process of design, build and test
- Introduction to the project, materials, tools
- Split up into teams, design, build, test, iterate
- Live demonstration to everybody else
- Closing comments, find the bus, drive back to school

# Case Study 2

- in three hours



# Case Study 2

- ten-year-old children



# Case Study 2





# Case Study 2

- Quality of finished product varied considerably :-)
  - arguments over design
  - people hogging the hot glue guns
  - people obsessing over tiny parts of the project and not listening to anybody else
  - crying
- So, much like any technical project you've ever been involved in, really.

**How is any of this possible?**

**(why does it seem less surprising  
when you find out we're talking  
about children?)**

# Theory 1

- Children are fundamentally better at engineering than adults.



# Theory 2

- Teachers know something about managing small technical teams that engineers don't know.



# Theory 3

- Engineers are not like normal people, and in fact are more like children



**Maybe a technical team has more  
in common with a school play than  
with a conventional corporate  
department?**

# In Conventional Jobs...

- People are lucky to have their jobs
- People are fearful of losing their jobs
  - new jobs are hard to find
- People's fear drives them to be diligent and conscientious at all times
- People understand that work is not fun
  - it is work
  - you're not supposed to like it

# Internet Companies...

- live in constant fear of losing their key technical staff (smaller companies even more than big ones)
- know that their best staff will leave in a second if there's a chance of more interesting work that pays better
- have staff that are motivated by what is fun and interesting



# Natural Gamblers

- Good technical people are gamblers
  - risking stability, certainty, reputations
  - for long hours, under challenging workloads
  - for the possibility of winning the lottery
  - stock value, or simply becoming more valuable to the next employer
- In 2016, who takes a job expecting to retire there?

# Clues

- Successful Internet companies provide a work environment that is more like a school play since if they don't
  - they will lose staff
  - they won't be able to hire more staff
- Not just in cafes and climbing walls, but in work that feels rewarding and fun



# How to keep ~~children~~ technical staff happy?

- interesting, challenging work that makes a difference;
- a constant stream of new toys to play with;
- to hang out with their friends;
- to earn respect and admiration for what they achieve;
- to stand out amongst all the other ~~children~~ technical staff in the ~~school~~ industry.

# Not just a Silicon Valley Phenomenon

- It's not a geographical phenomenon, it's an industry phenomenon
  - topology transcends geography
  - communication is instant and always on
- You can lose your best people to anybody in the world at a moment's notice, if they are not happy

# What Not to Do

- Conventional wisdom has been that engineering careers progress from technical contributor to management
  - but many engineers make terrible managers
  - do we even need to go into this in any detail?
- Companies like Dyn maintain separate career paths, management and technical, so you can still move ahead without having to stop doing what you do

# Anatomy of a Terrible Manager

- can't delegate effectively
- are too focused on the subject matter (the technology), not on the people
- do not value the contributions of their staff
- do not reward their staff
- are in constant conflict with their staff
  - staff that are not happy
  - staff that will leave

# Anatomy of a Terrible Manager

- Look at that list again
- Tell me that's not the opposite of every characteristic you associate with a teacher
  - not just a good teacher
  - pretty much any teacher who can hold down a job

# So, Food for Thought:

- The next time you need a manager for a technical team,
  - consider letting the engineers be engineers;
  - promote them, reward them, but do not punish them by turning them into managers.
- Hire someone who knows about people, not just technology.
- Maybe hire a teacher.







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