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

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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
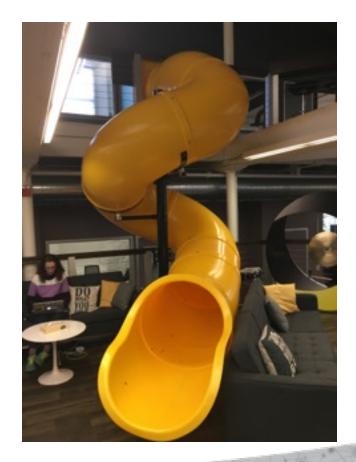
Internet Companies...

- 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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