

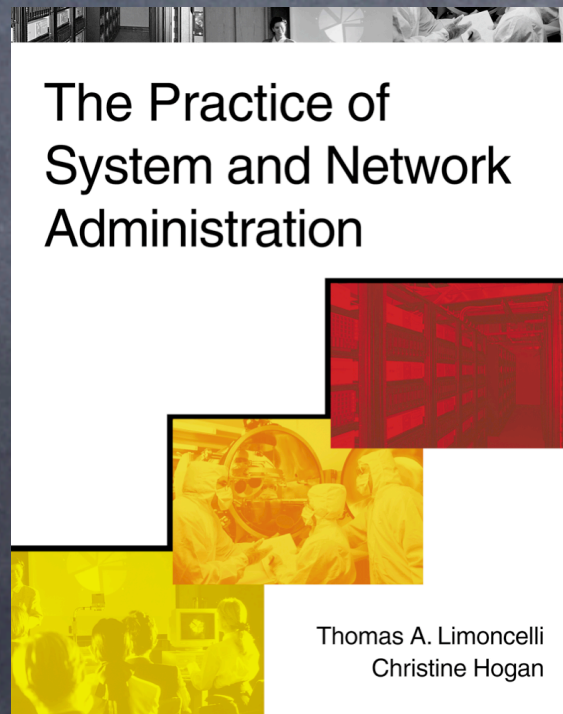
What big sites can learn from small sites

Tom Limoncelli

www.EverythingSysadmin.com

The Practice of
System and Network
Administration

Time Management for
System Administrators



Booster!
Vitamin C
Ascorbates
with
L-lysine &
Chondroitin
for Joints!
Energy Drink Mix
Dietary Supplement
Net Wt. 0.3 oz. (8 g)



The Practice of System and Network Administration
Limoncelli Hogan
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Three talks in 1

1. Why aren't things getting better?
2. Are "best practices" the solution?
3. What I learned from rebuilding a small site

Warning:
This is not going to be a
very "deep" talk

(and there may be some foul language.)

Part 1:
Why aren't things
getting better?

Where the hell is my
flying car?

20 Years Ago
vs.
Today

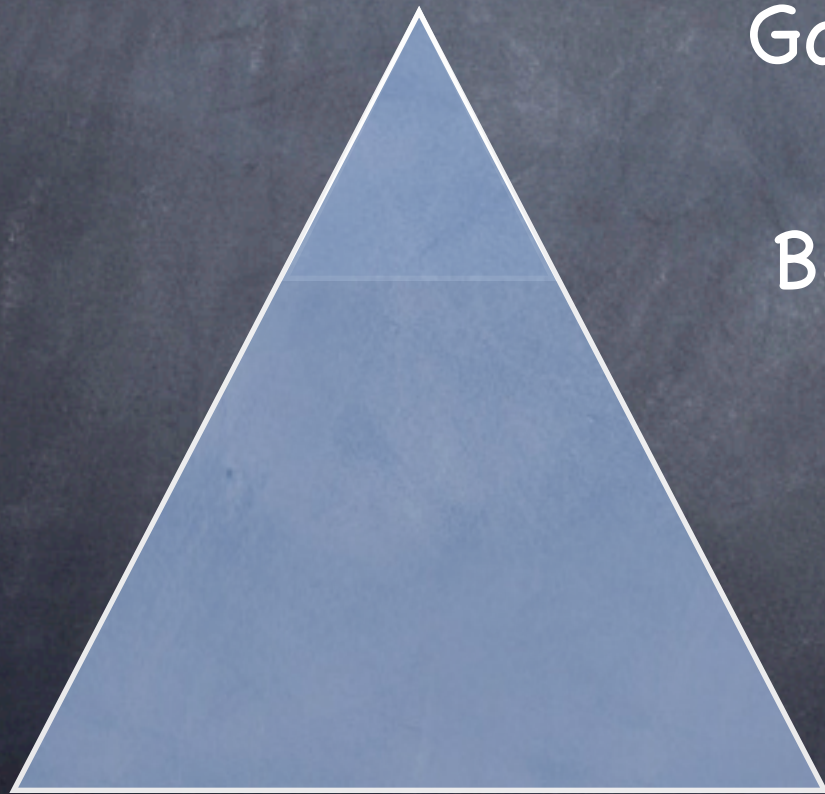
20 Years Ago



Good IT

Bad IT

Today



Good IT

Bad IT

Really bad IT

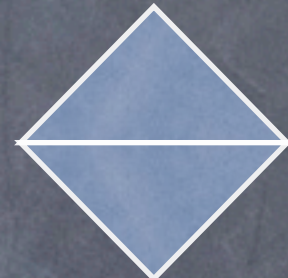
Other possibilities?



Equal



Optimal



Bell Curve

How did that happen?

How did that happen?

Lots of new small sites without big IT teams.

What exactly is broken?

- We slack on the fundamentals
- We don't know what the fundamentals are

Big and Small Sites

- Companies w/DBAs, no IT staff
- AT&T Wireless's CRM disaster
- Security teams with responsibility but no authority
- 2 big sites with "ARP problems"
- Insurance company: 2 months to buy PC

Part 2:
Are Best Practices the
Solution?

The Electrician

VS.

The Electrical Engineer

A construction project
stops rather than do
something "not to code"

What's missing?
The Inspector

The state of "best
practices"

Vendor "Best Practices"

Sun has `em, but who listens?

vs.

Microsoft has them and is fascist about `em

SAGE Short Topics Booklet Series

- Documentation Writing for Sysadmins
- Budgeting for Sysadmins
- Backups and Recovery
- Job Descriptions
- Higher Reliability
- Hiring

Tutorials

Usenix/LISA Tutorials:

- Project Management
- Rules of Thumb
- Time Management
- Management 101


(Halprin, Zwicky, Simmons, Damon, Limoncelli, Hogan, and many more.)

Books

The Practice of System and
Network Administration

by

Tom Limoncelli and
Christine Hogan

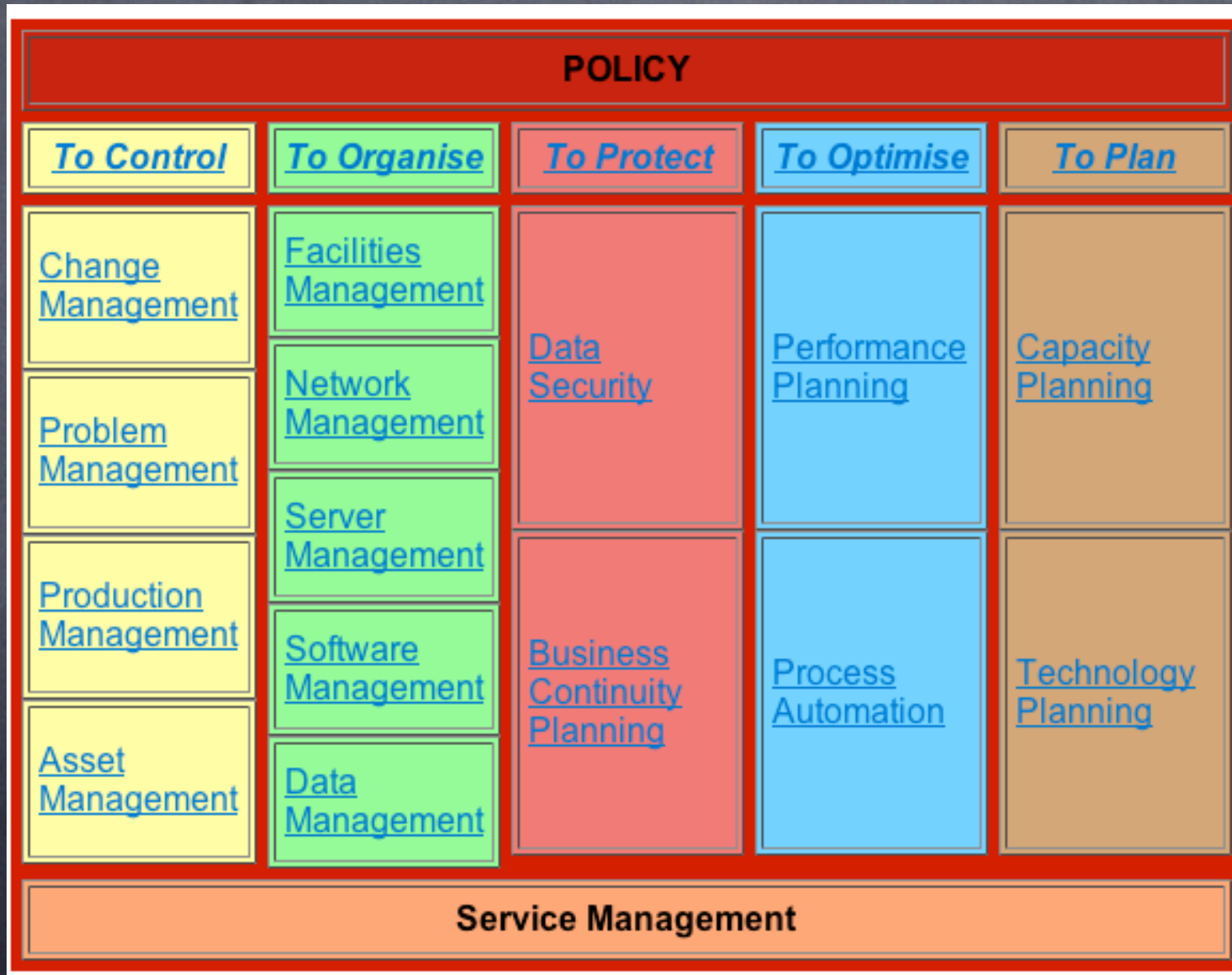


The Practice of System and Network Administration



Thomas A. Limoncelli
Christine Hogan

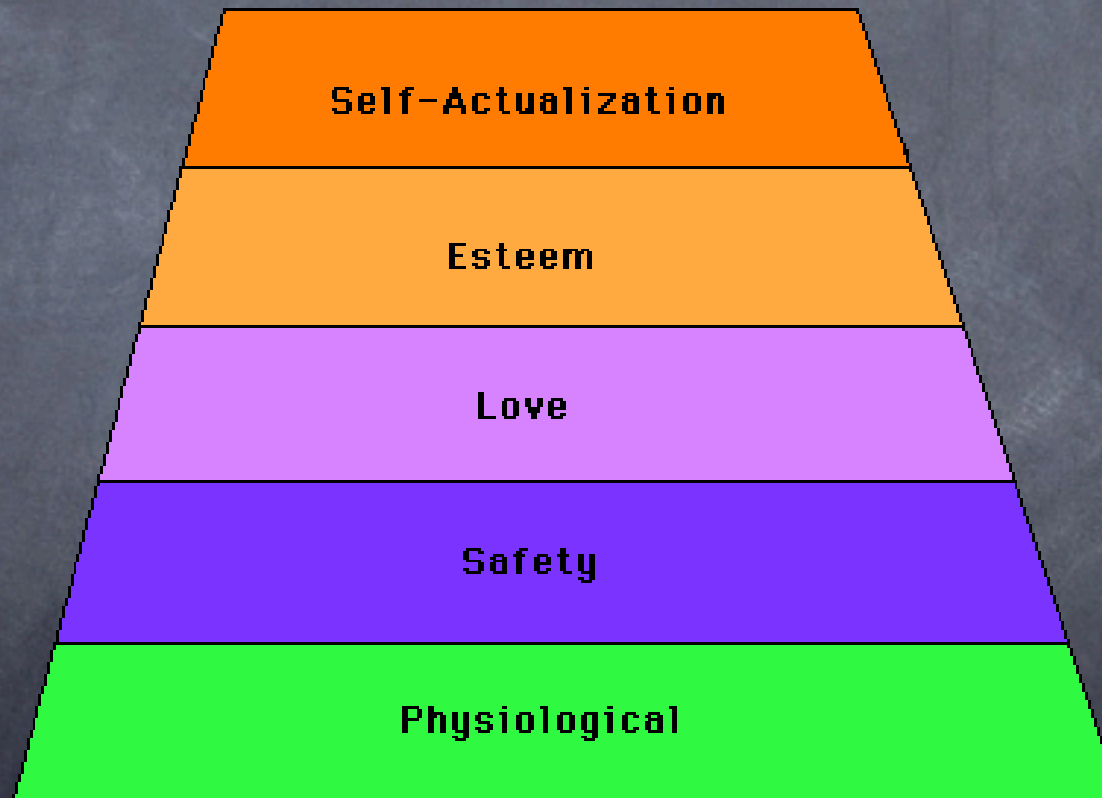
Sysadmin B.O.K.



SysAdmin Capability Maturity Model (SA-CMM)

Level	Focus
5. Optimising	Continuous Process Improvement
4. Managed	Product and Process Quality
3. Defined	Engineering Processes and Organisational Support
2. Repeatable	Project Management Processes
1. Ad-Hoc	Competent People and Heroics

Maslow's Hierarchy of Needs



Hierarchy of user needs (draft)

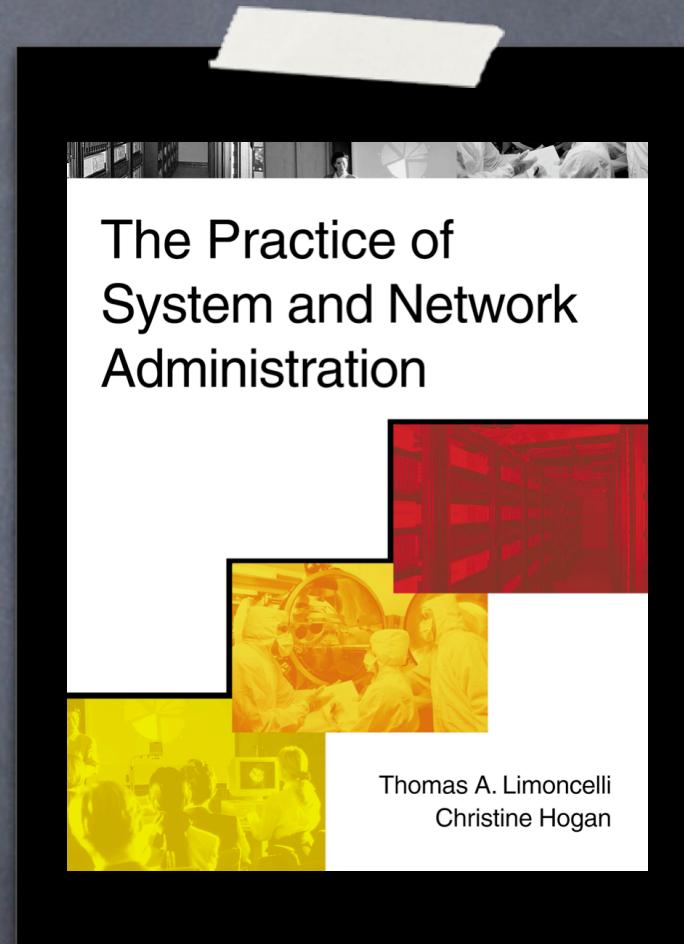
4. Self-sufficiency (Can I improve/manage/etc. "my stuff" without external help?)
3. Do I feel I will get it done in the future?
2. Can I always get my job done?
1. Can I get my job done now?

Part 3:
Lessons from rebuilding
a small site

Part 3:
Getting the
fundamentals right

33 Chapters

- Each chapter is split into “The Basics” and “The Icing”
- Just doing “the basics” is too much!
- Nothing crystallizes your priorities like being there.



Phase 0: Acclimation

- Who are the players
- Current emergencies
- The back-log of projects

Old vs. New

- Previous IT: Measured on MTTR
 - Failure -> Resolution
- New IT: Measured on SLA conformance
 - Failure -> Outage -> Resolution
 - Decouple component failure from outage

Phase 1: Basic Stability

- Major outages were a common occurrence
- Goal: Gain Basic Stability
 - Make sure backups are working
 - Replace “accidents of history” decisions that hurt reliability
 - Learn the purchasing process

Network:

- Stop using PCs to route packets

Security:

- Install firewall as stop-gap measure

Servers:

- RAID-1 (mirror) on all boot disks

Users:

- Be visible, meet with people.

Email:

- #1 app to make stable

No documentation?

- No time for a big solution!
- Flat files in subdirectories:
 - ~/it/vendor_contacts
 - ~/it/processes
 - ~/it/policies
- Label Printer -- If you touch it, label it.

Physical Issues

- The big four:
 - Cooling -- is it within spec of machines?
 - Power -- are UPSs in place?
 - Security -- physical locks?
 - Wiring -- organized? labeled?
- And a label printer in every pot!

- Desktops: Full-time temp to maintain Windows PCs to give IT staff breathing room
- Management: What are my staff's skills? Can I improve workflows? Do they have the tools they need?
- Sat with staff to learn their needs:
 - Toolkit, patch cables, label printer, and UltraEdit
 - Root/Admin

Phase 2: Basic IT Apps

- Helpdesk: RT from www.bestpractical.com
- Monitoring: Nagios and Cricket
- Documentation: TWiki
- Remote Control: (VNC, KVM, Serial Console Server, IP-KVM)
- Backups: Automated tape library

Phase 3: Clean up

- Participate in corporate projects
- Finish "last 2%" of previously started projects
- Writing/enforcing new policies
- Start to plan big vision ideas like:
 - Global directory
 - More written policies (esp. security)
 - Job descriptions/raises/etc.

Phase 4: Growth

- Topic of next year's talk?

Manage Expectations

- Two-month check-in with leadership team.
 - Presented dire (honest) state of affairs
- Optimistic outlook:
 - “We’re going to get through this. ...but it isn’t going to be pretty, or fun, or inexpensive.”
- Crisp vision statement:

IT Vision for 2004

- *A World-class network:*
 - *Reliable by design*
 - *Remote management for all services*
 - *Monitored for issues before they become outages*
 - *With basic disaster recovery*
- *With consistent desktop/deskside support:*
 - *Accessible: Users know how to get help*
 - *Quality: SAs meet or exceed SLAs*

Summary: The basics

- Stop the hemorrhaging with basic infrastructure
 - Network, Server, Physical, Email, Visibility
- Introduce the basic 5 management apps:
 - Request tracking (RT)
 - Monitoring (Nagios/Cricket)
 - Documentation (TWiki)
 - Remote Control (VPN, VNC, KVM/ConServer)
 - Automated Backups
- Manage visibility to management and customers: be honest and pessimistic.

Conclusion

- Things aren't getting better
- We've identified (some of) the reason:
 - Fundamentals
 - Small sites don't know what they are
 - Big companies ignore them
 - Lack of best practices
 - Do we need a new model?
- Big sites can worry about many aspects of infrastructure. Small sites are forced to focus on the most important priorities.
- Being at a small site crystalized for me what those are.