System Administration

Week 01, Segment 03: Core Principles

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Scalability

Security

Simplicity

Superbuilders
SysAdmins
One poorly spec’d web server.

Denial of Service

All your web traffic.
Scaling Vertically
Scaling Horizontally
What People Think About Usable Security

Usability

Security

not secure or usable
digital handcuffs

user bliss

https://www.leeyat.com/usable-security
Keep It Simple, Stupid
Brick 2 x 4

Item No: 3001

Items Info
Years Released: 1965 - 2021
Weight: 2.32g
Size: 2 x 4 x 1 in studs

My Inventory
Add to My Inventory
66364 Lots For Sale
CORE PRINCIPLES IN RESEARCH

OCCAM’S RAZOR

“When faced with two possible explanations, the simpler of the two is the one most likely to be true.”

OCCAM’S PROFESSOR

“When faced with two possible ways of doing something, the more complicated one is the one your professor will most likely ask you to do.”
IN THIS HOUSE, WE OBEY THE LAWS OF THERMODYNAMICS!
Hanlon's Razor

Warning: Cuts both ways!
Why yes, Pareto's Principle rules everything around me. Well, most things, anyway. About 80% or so. The rest are harder to explain.
Mostly carp.
“You see there is only one constant. One universal. It is the only real truth. Causality. Action, reaction. Cause and effect.”
SysAdmins’ favorite Laws

• Ockham’s Razor:
  “Of two equivalent theories or explanations, all other things being equal, the simpler one is to be preferred.”

• 2nd Law of Thermodynamics:
  “The entropy of an isolated system always increases with time.”

• Hanlon’s Razor:
  “Never attribute to malice that which can be adequately explained by stupidity.”

• Pareto’s Principle:
  “80% of consequences stem from 20% of the causes.”

• Sturgeon’s Law:
  “90% of everything is crud.”

• Murphy’s Law:
  “If it can happen, it will happen.”

• Throw in some philosophy for good measure:
  Causality: For every effect, there must be a cause.
Up next

• UNIX history and basics: https://www.youtube.com/watch?v=3H7SQWTR6Dw
• Homework assignments in detail
• Just enough git basics for this class

• Week 02: Storage Models and Disks

• Recommended exercises:
  • Consider the current most popular websites and Internet businesses or organizations. Try to find out details about their infrastructure and how it is maintained.
  • Research available classes and degree granting programs in the field of System Administration. Compare their contents to those of industry standard certification courses.
  • Determine the Unix commands you execute most frequently (for example via analysis of your shell’s history file). Analyze the top three commands for their complexity and interfaces.