3 Myths and 3 Challenges

To Bring System Administration Out of the Dark Ages

Mark Burgess
CFEngine
From Dark Ages passed ...
To enlightenment ... ?
To an industrial present …

configuration management
The 3 Waves of Technology

1W. Agriculture Wave - Tend it by hand
2W. Industrial Wave - Amplify Man with Machine
3W. Knowledge Wave - Learn and Design with Intent
2W Myth 1: ordered sequential control
or why British people like to queue up

- Walk like a … machine
- Dependence on the beginning instead of the end - fragile
- False sense of priority
- Amdahl's law
The Chomsky hierarchy

- Complex grammars ARE order dependent – but can still be parsed out of order
2W Myth 2: determinism & rollback
Or why you shouldn't walk in front of trains

- We don't control all details about environment
  - Critical sections
  - Single user mode
  - Thread locks
  - Transaction control
- False sense of certainty
Reducing risk without time-travel

• Rockets
  – Planning
  – Overhead
  – One chance only
  – Major roll-out

• 747
  – Easy to make
  – Reusable
  – Adapt
2W Myth 3: hierarchy or bust
or why trees are losing to human beings

- A simple structure that does not capture the true nature of anything
- Creates a false sense of rank
- A fragile structure with many “single points of failure”
- Depth vs breadth problem
Lie back and think about sets …

- A more general approach
- Tag labels are like sets that can overlap
- CFEngine class model
- Maximum flexibility
3W challenge 1: emergent complexity
or why you shouldn't have to tidy your room

- Look before you judge
- Ok to approximate
- Escape from depth vs breadth
Easy vs simple

• Easy:
  • Low psychological or resource cost to getting started
  • Few hurdles to overcome

• Simple
  • Consistent approach
  • Few principles and ideas to learn
  • Low total cost of investment over time
Today's IT is not a Swiss Watch...

...more like a muddy ecosystem
2W challenge 2: commerce alignment
or why rockets have trajectories
but fireworks just blow up

- Business drives the world
- Head in a well-defined direction
- Human sense of purpose
- Improve your importance and your pay
From 2\textsuperscript{nd} to 3\textsuperscript{rd} Wave tools ...

Some technologies don't cause a fuss...
What actually drives society and its progress?

The freedom equation: $F = me^3$
The real cloud
3W challenge 3: knowledge
Or why you should consult the plans before digging a hole

- Knowledge is more than information (DIKW)
  - Context
  - Meaning
  - Experience
  - Use of patterns
Who needs knowledge?

- Everyone who didn't build it with their bare hands
  - What, when, where, how, why?
Meaning vs Information

Patterns bring meaning to cognition
Significance...
Ask the right questions

- What are we waiting for? No time to stand still!
  - The 3rd Wave is amongst us!
- Myths that bind us to bad/limiting habits
  - Serial thinking, determinism, hierarchy
- Challenges that invite the future
  - Emergence, goal orientation, knowledge
- Next:
  - Change the face of system administration
  - → Infrastructure engineering
Thank you

and enjoy the rest of the conference

mark@cfengine.com

This evening

CFEngine BoF @ 18:00::CenturyAB
Non-commercial use of images

Some images from the Internet ray Tracing Competition Archives

Sets picture `From BASIC to Pascal'

Historical picture of New York underground from WWW

Various commodity pictures