



3 Myths and 3 Challenges

To Bring System Administration Out of the Dark Ages

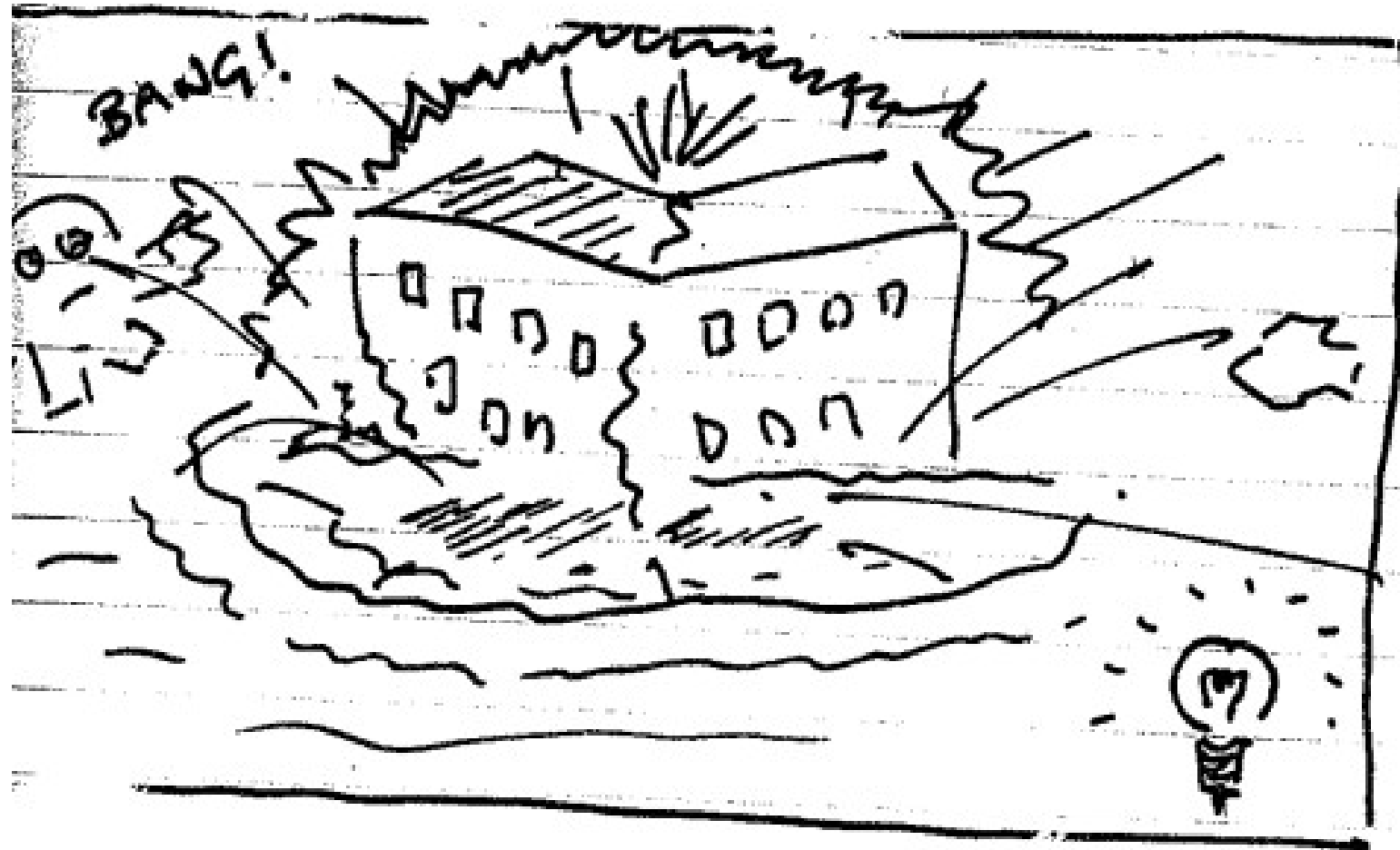
Mark Burgess
CFEngine



From Dark Ages passed ...



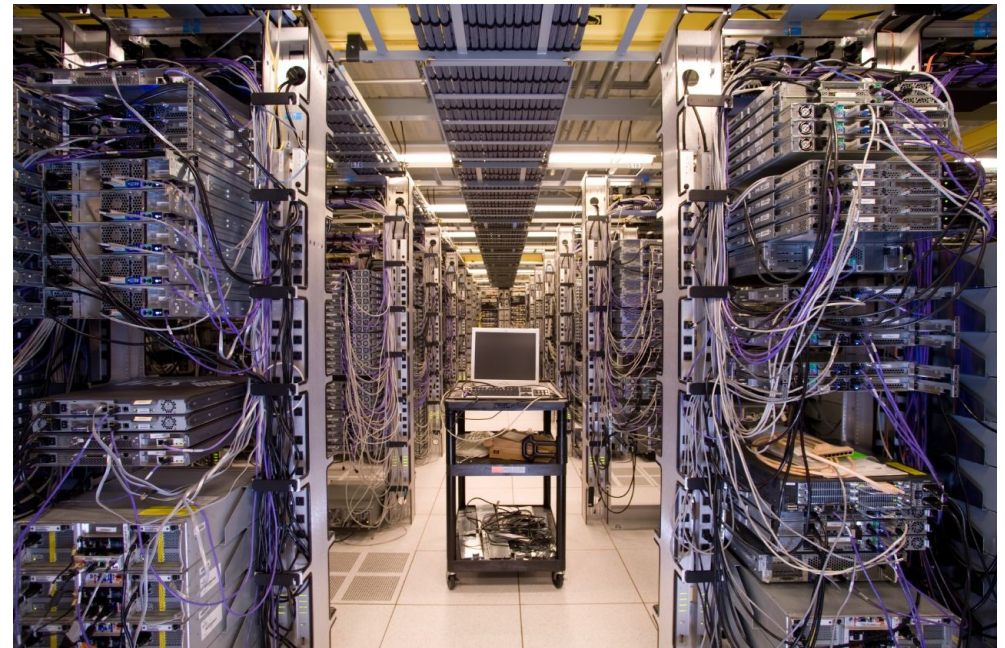
To enlightenment ... ?



To an industrial present ...



configuration management



The 3 Waves of Technology



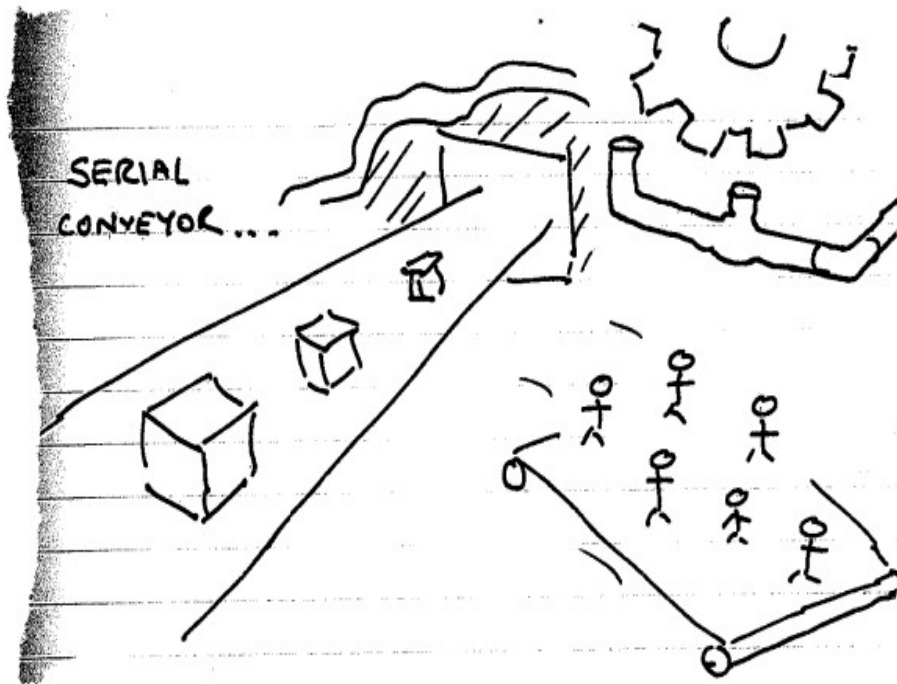
1W. Agriculture Wave - Tend it by hand

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



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- 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

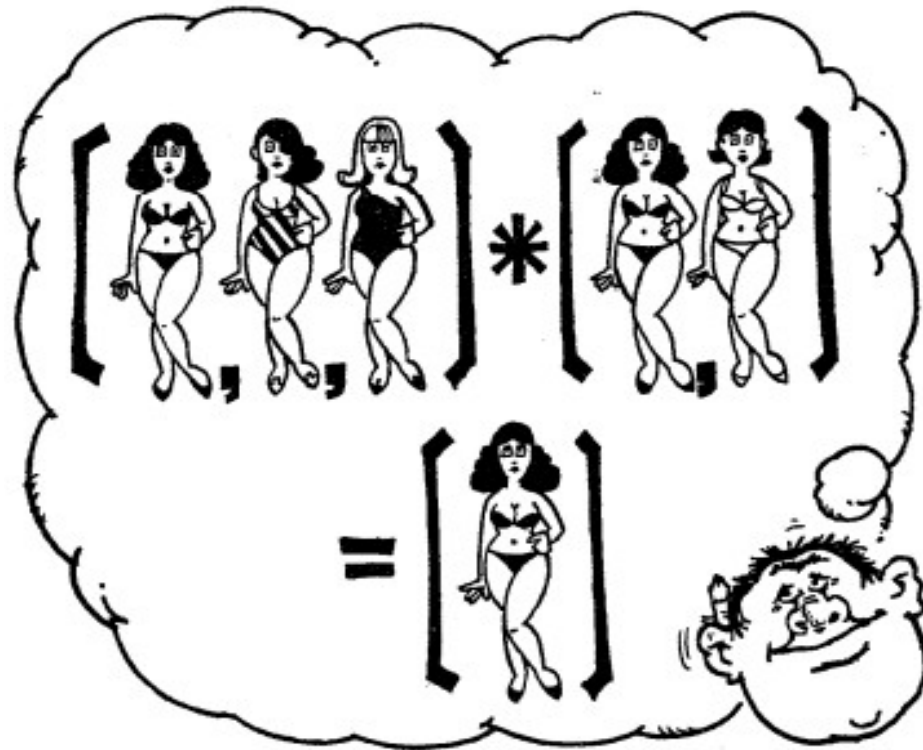


Lie back and think about sets ...

Sets

All you think about is sets.

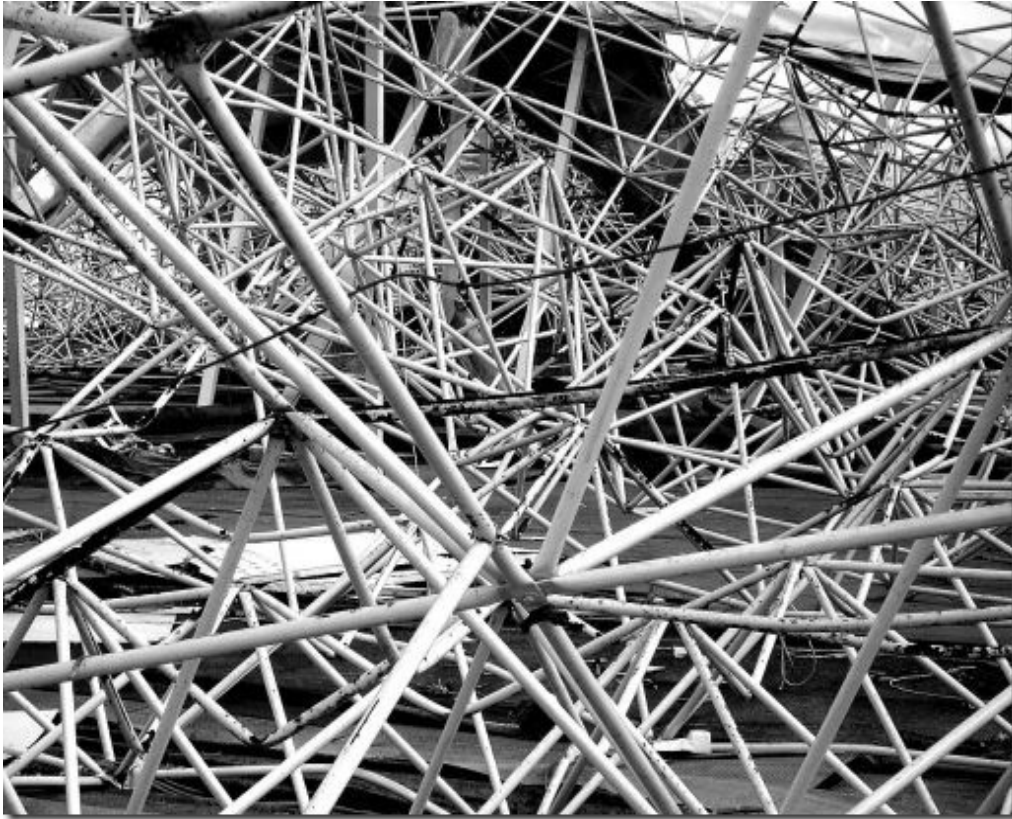
CONDEMNATION OF ADOLESCENT PASCAL PROGRAMMER



- 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

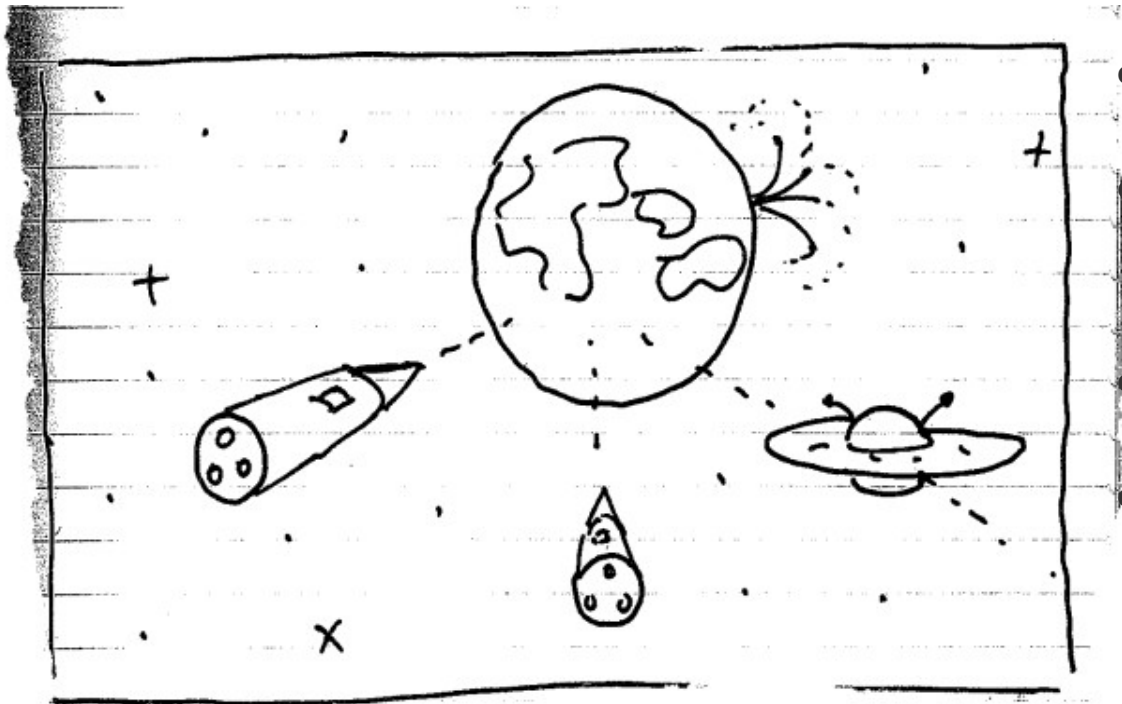
Today's IT is not a Swiss Watch..



...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 2nd to 3rd Wave tools ...





What actually drives society and its progress?



The freedom equation: $F = me^3$

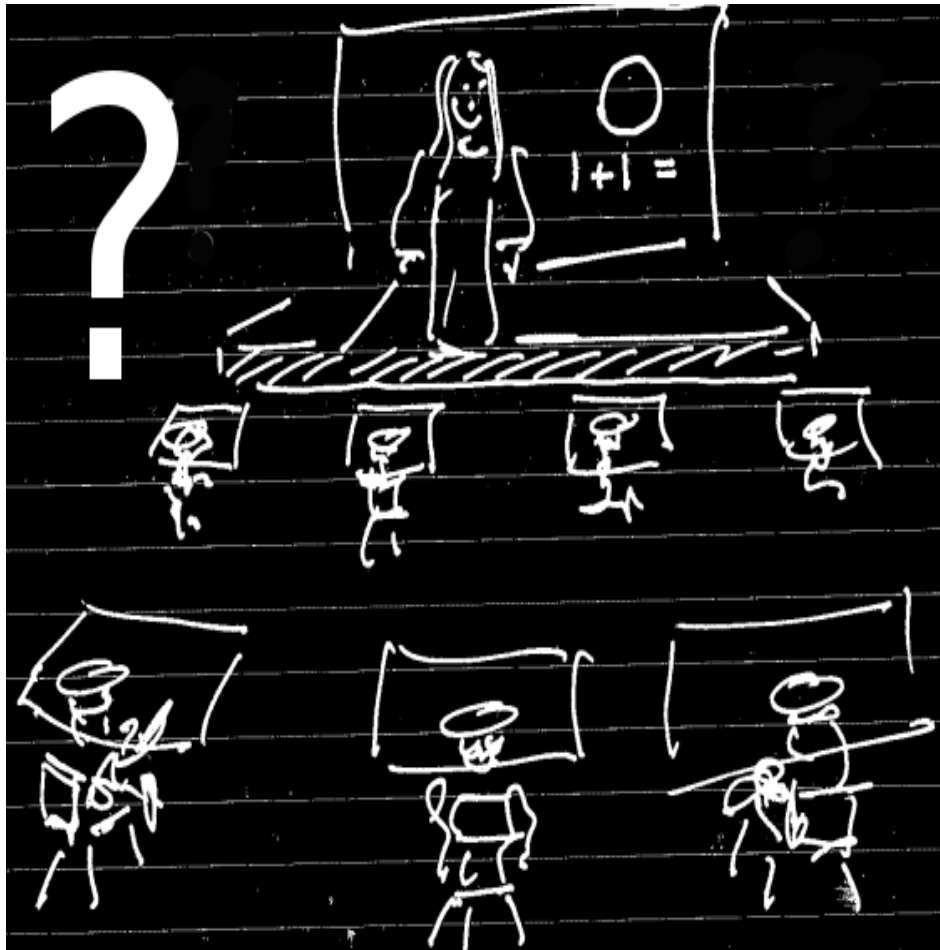


The real cloud



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

The screenshot shows the homepage of sol.no, a Norwegian news website. At the top, there's a search bar and navigation links. The main content area is dominated by a large article titled "John" with a photo of a man. Below this, there's a grid of smaller articles and advertisements. The layout is typical of a news website from that era, with a focus on text and small images.

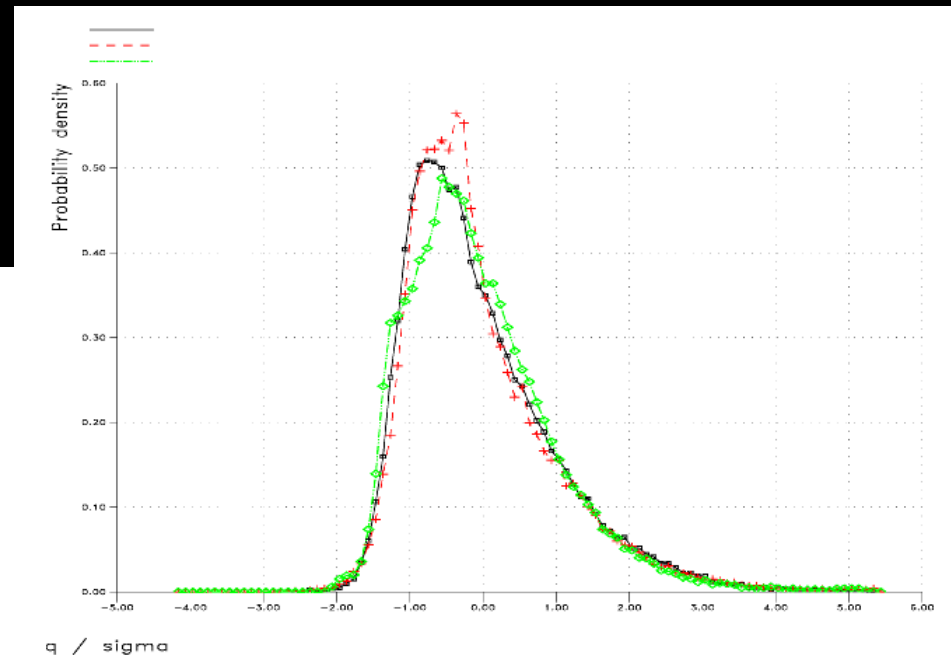
A black rectangular area containing a red square with the white text "NAD" and the text "click to enter" below it. This is a simple, minimalist design element.

Patterns bring meaning to *cognition*

Significance...



NAD



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