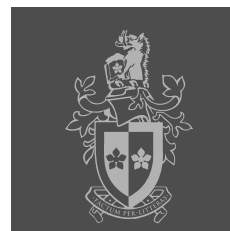




# Congestion control, wireless and energy-efficient networking

Lachlan Andrew



## Overview

Wireless (802.11)



Energy-efficient IT



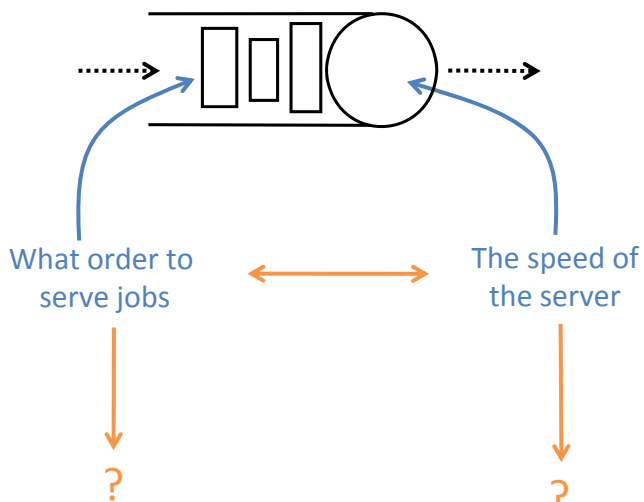
Congestion control



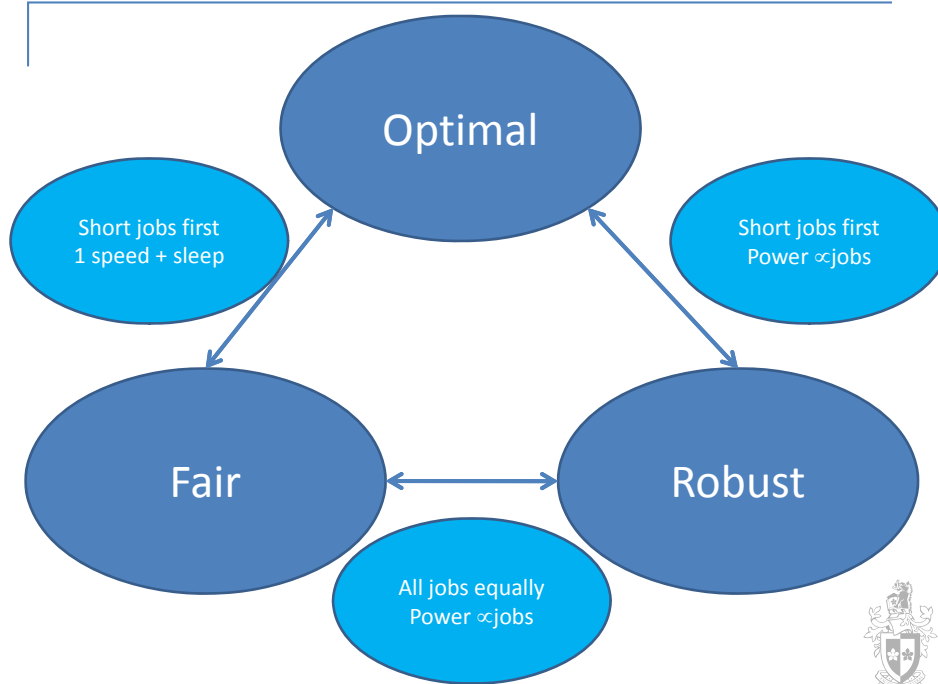
<http://caia.swin.edu.au/cv/landrew>



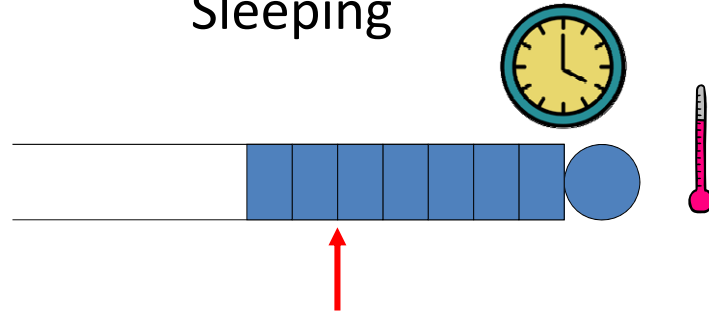
# Speed scaling for energy efficiency



With Adam Wierman, Minghong Lin, Kevin Tang



## Sleeping

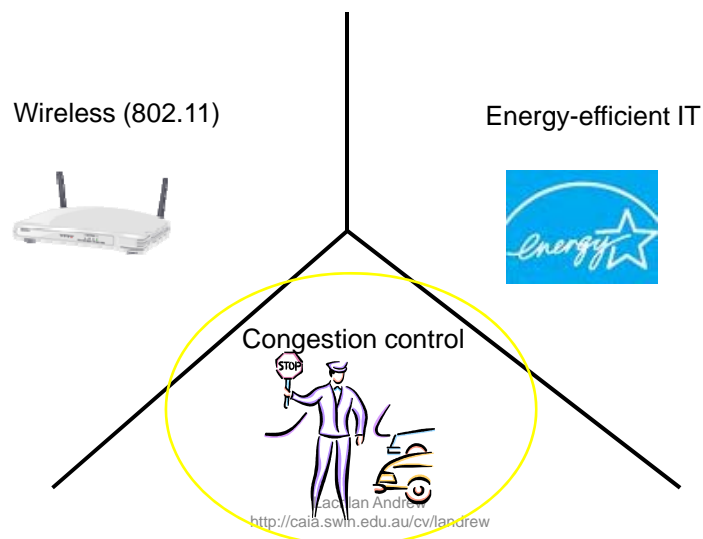


- Energy saving increases max temperature
- Turn on after timeout, even with few packets
  - How does that change threshold?
- With Yannis Kamitsos, Mung Chiang

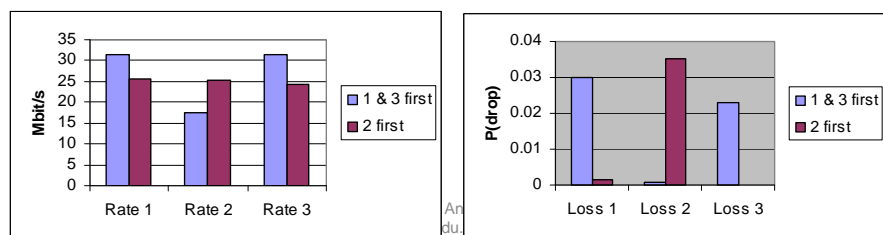
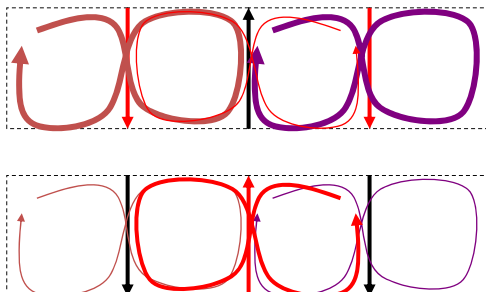
Lachlan Andrew  
<http://caia.swin.edu.au/cv/landrew>



## Overview

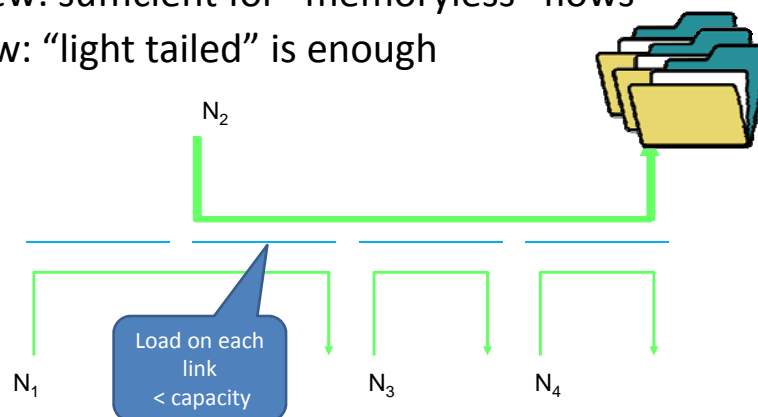


## Multiple equilibrium TCP rates



## When do TCP flows “build up”?

- Knew: sufficient for “memoryless” flows
- New: “light tailed” is enough

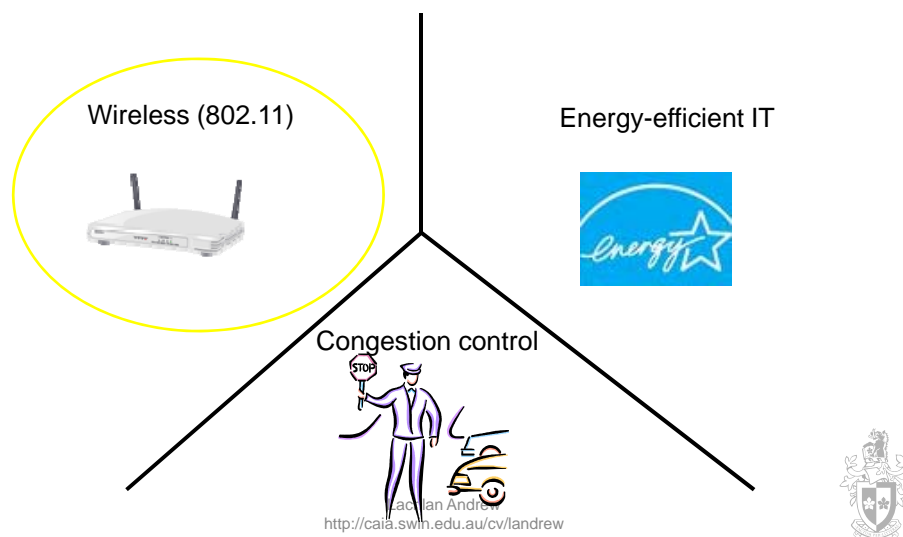


With Fernando Paganini, Andras Feragut, Kevin Tang

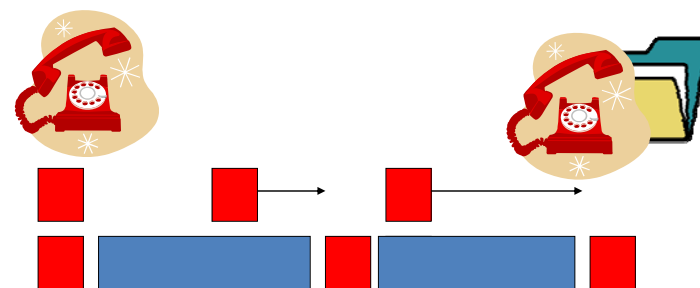
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<http://caia.swin.edu.au/cv/landrew>



## Overview



## Differentiation without prioritisation



- CWmin -- how *often* to transmit
- TXOP -- how *much* to transmit
  - Atomic game
- With Suong Ngyuen and Hai Vu

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<http://caia.swin.edu.au/cv/landrew>



# Thank you

Wireless (802.11)



Energy-efficient IT



Congestion control



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