

Congestion control, wireless and energy-efficient networking

Lachlan Andrew



Overview



Wireless (802.11)



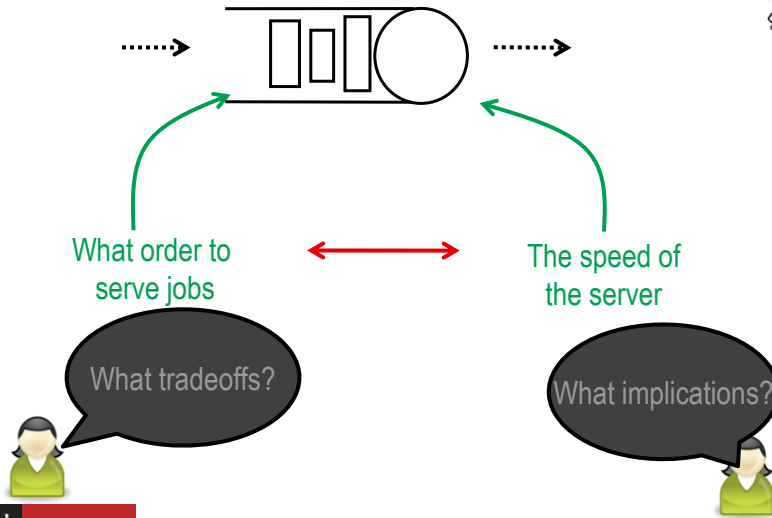
Energy-efficient IT



Congestion control



Speed scaling for energy efficiency



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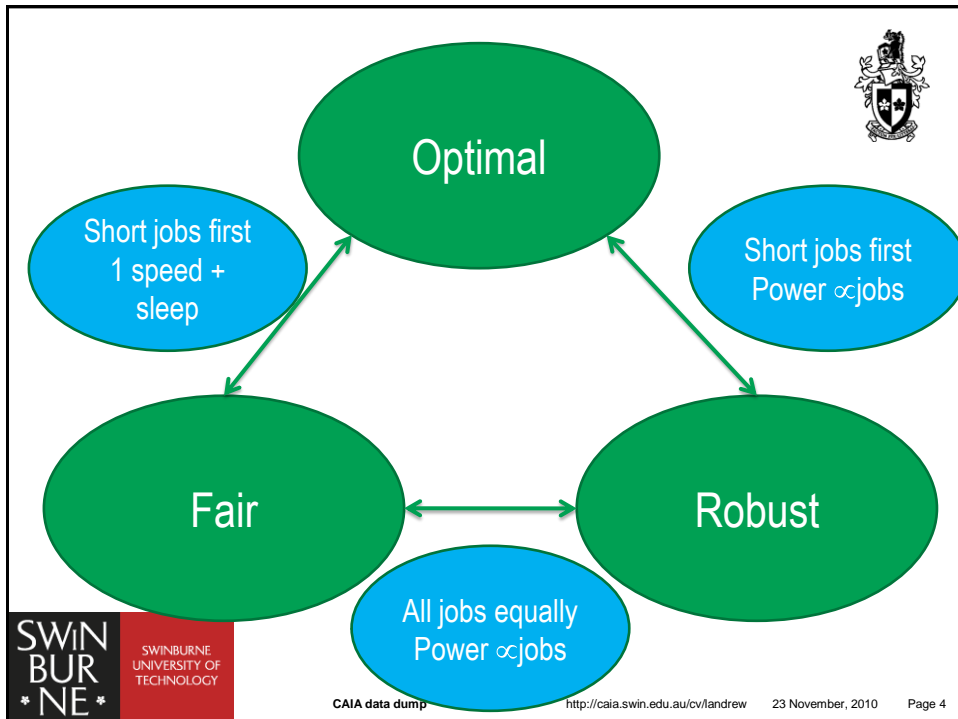
With Adam Wierman, Minghong Lin, Lijun Chen

CAIA data dump

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

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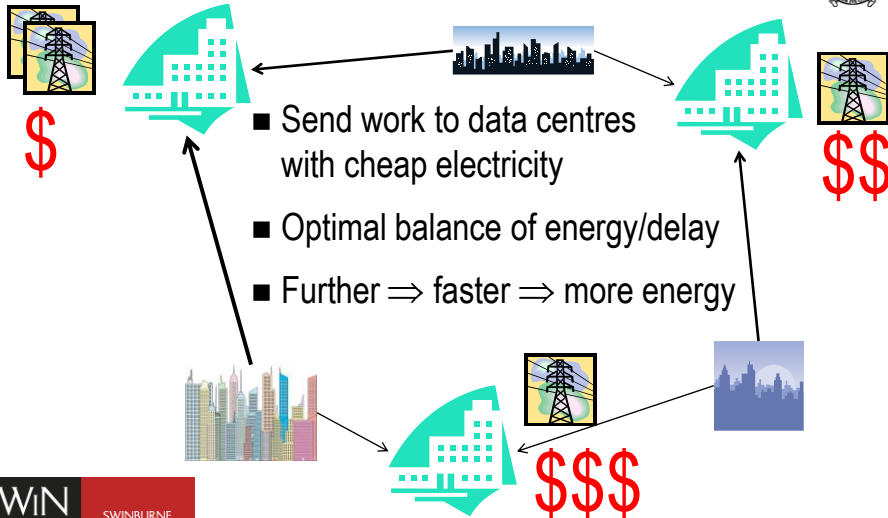
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Exploiting energy prices



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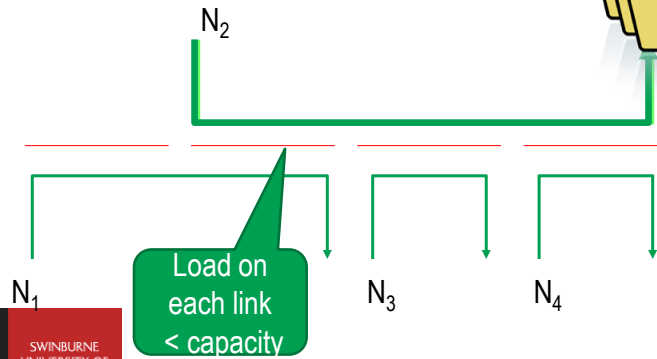
Congestion control



When do TCP flows “build up”?



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



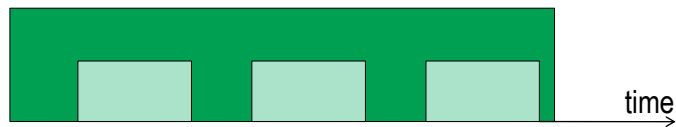
With Fernando Paganini, Andras Feragut, Kevin Tang

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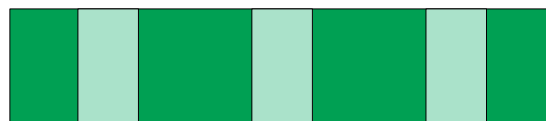
Beyond TCP friendliness



- Old: Give all flows equal rate



- Better: Finish short flows earlier



- Challenge: Long flow using many links can be starved

With Ihsan Qazi and Hai Vu



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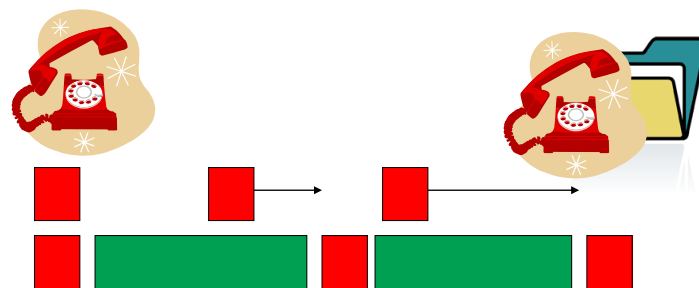
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Differentiation without prioritisation



- CWmin -- how *often* to transmit
- TXOP -- how *much* to transmit

□ Atomic game

With Suong Ngyuen, Hai Vu and Ihsan Qazi

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