Introduction to Unicorn, a Rack HTTP server

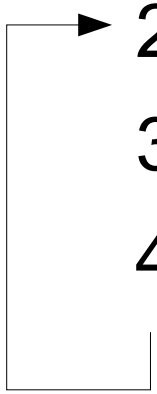
Paul Grayson, 6 June 2012

Background - Rack

- Rack is an interface between web servers and application code.
- It is all Ruby: app is accessed via a method
- Rails 3 is on Rack
- [show example Rack app]

Background - sockets

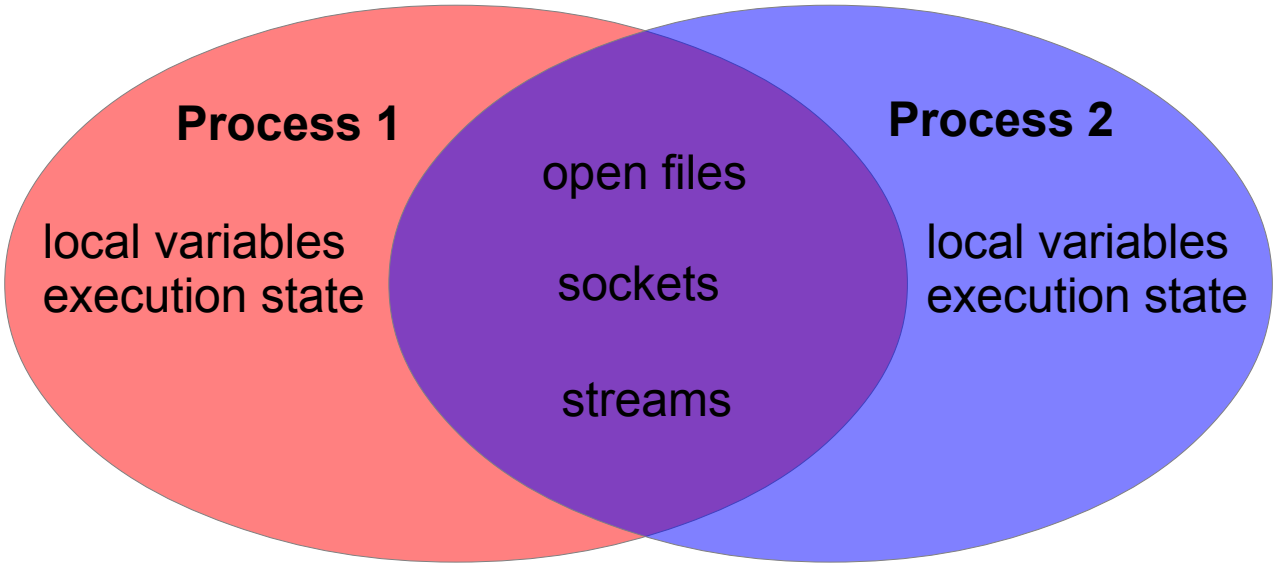
- HTTP connection life cycle
  1. Server listens on a TCP port
  2. Client connects
  3. Server accepts the connection
  4. HTTP Request/response etc.



Background - processes

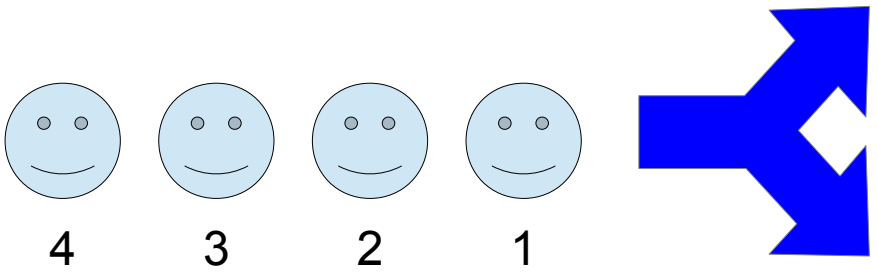
- Processes
  - Independent program copies
  - Copy-on-write saves RAM
  - Processes *may* share system resources

    ...such as sockets.



Traditional Rack servers (Mongrel, Thin)

- Multiple processes & ports
- A *proxy* distributes clients



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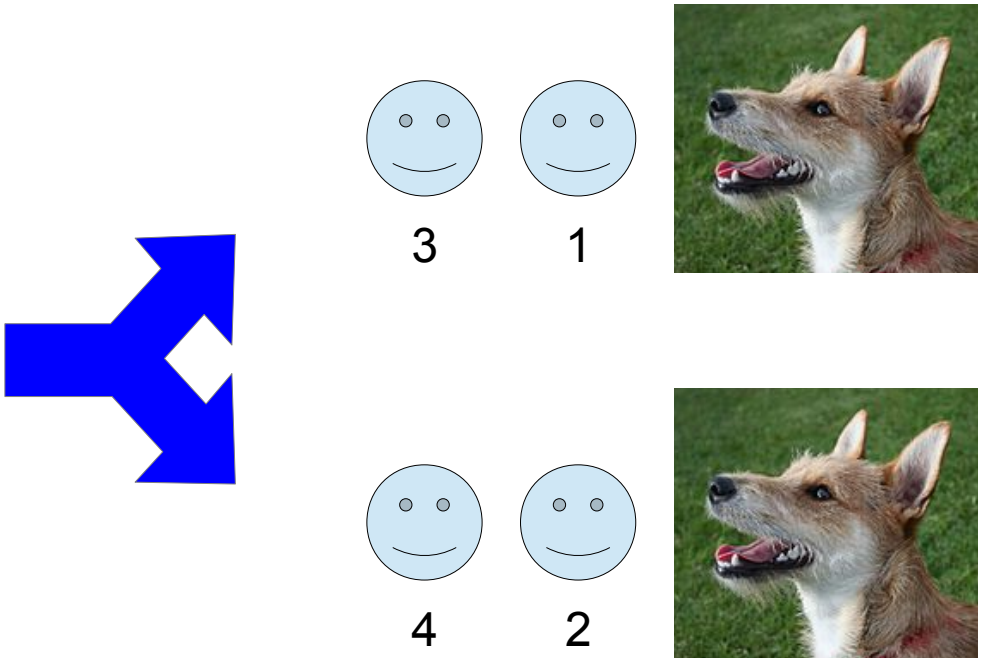

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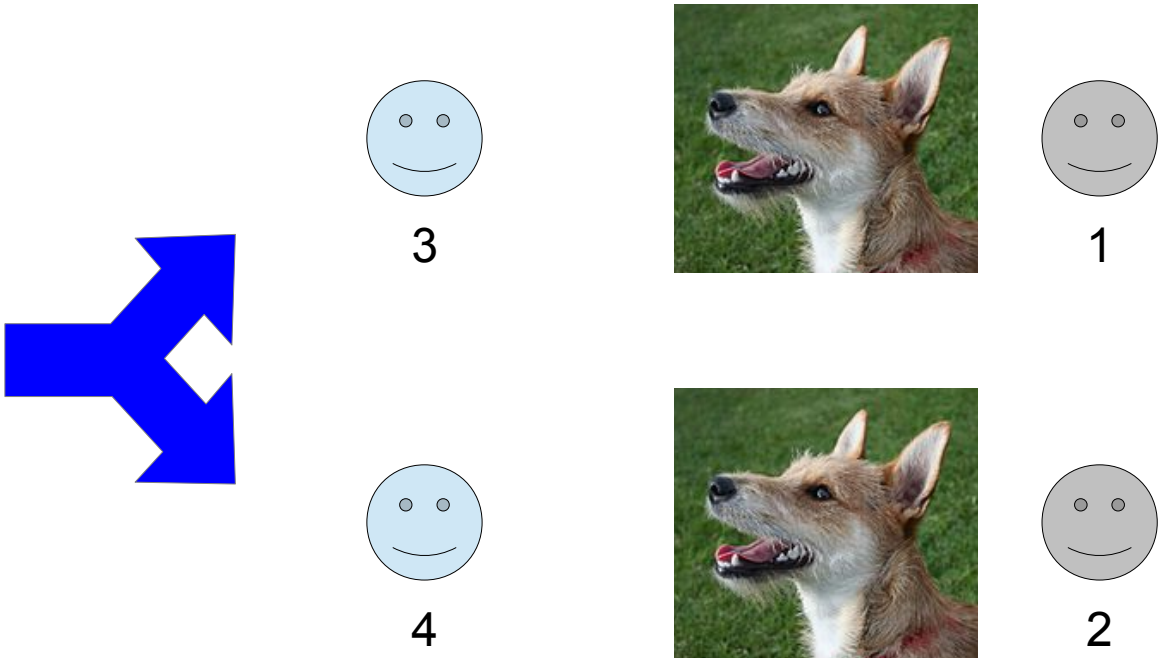

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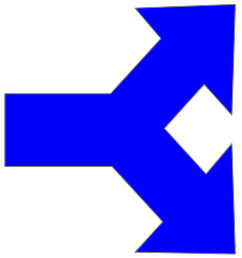

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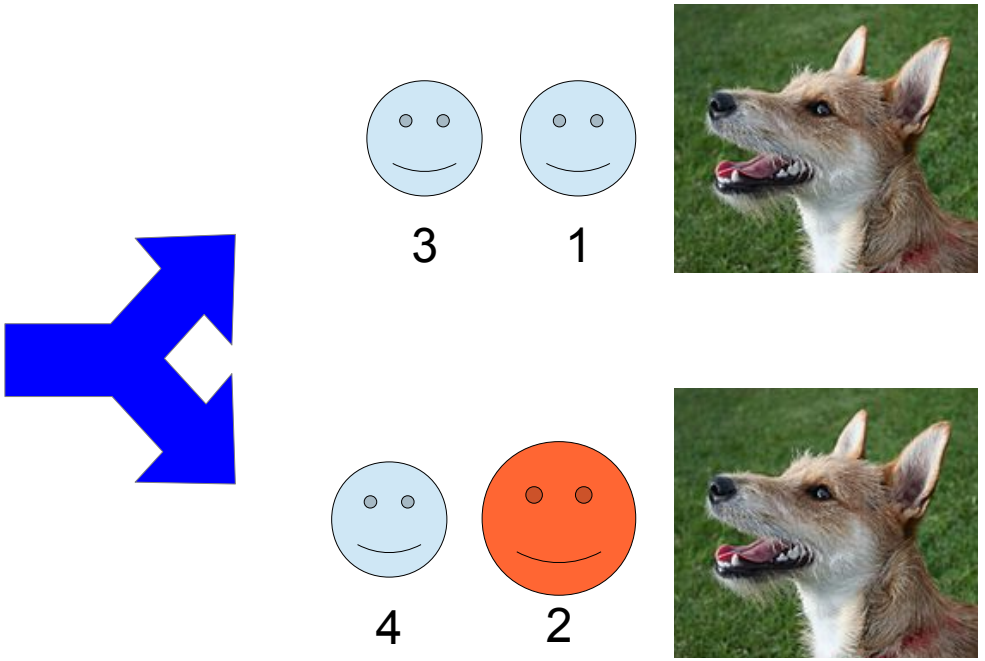
Slow requests will slow down other clients!



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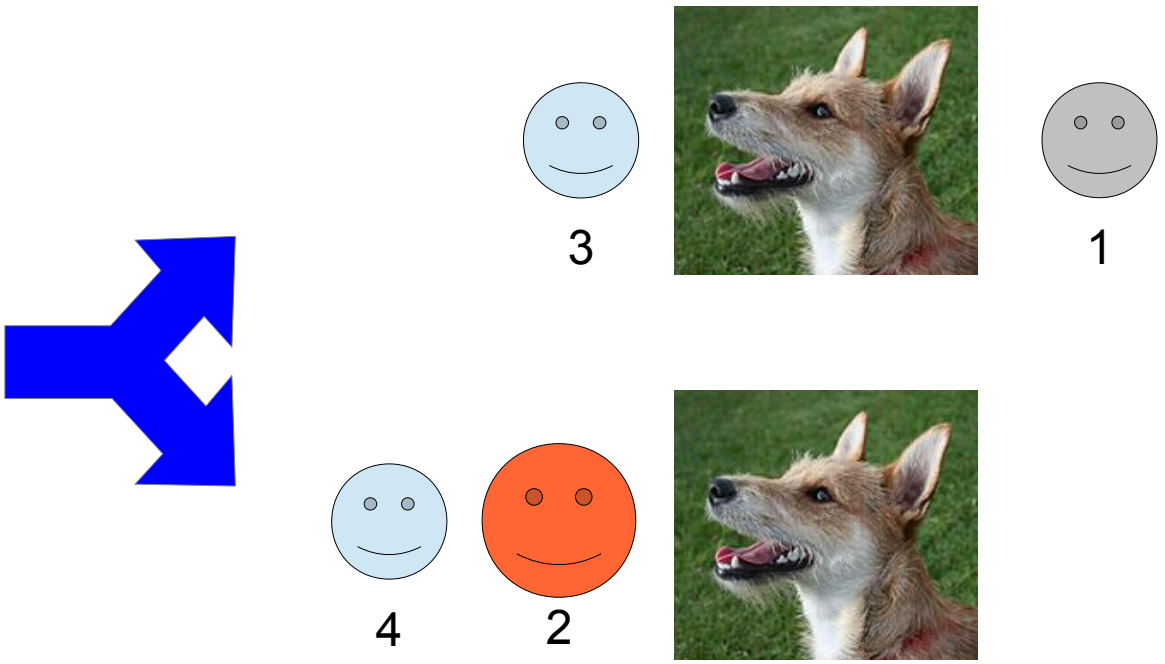

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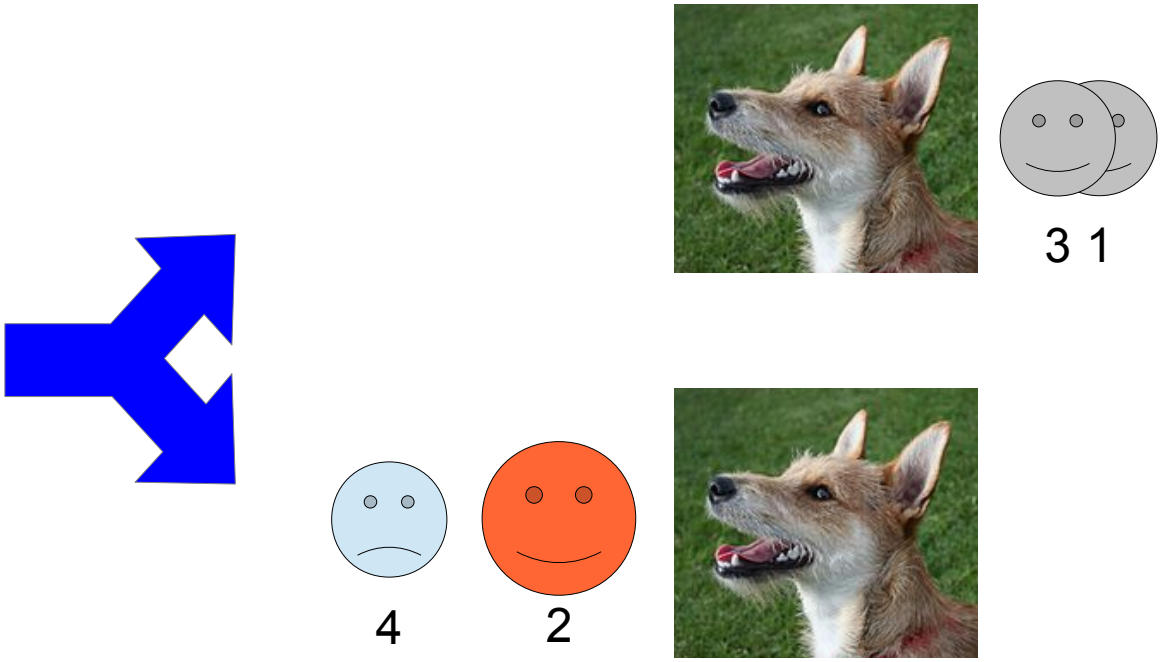
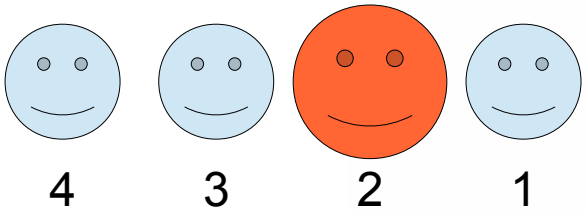


[show thin example]

Unicorn

- Multiple processes, ONE shared socket
- Unicorns accept connections when idle



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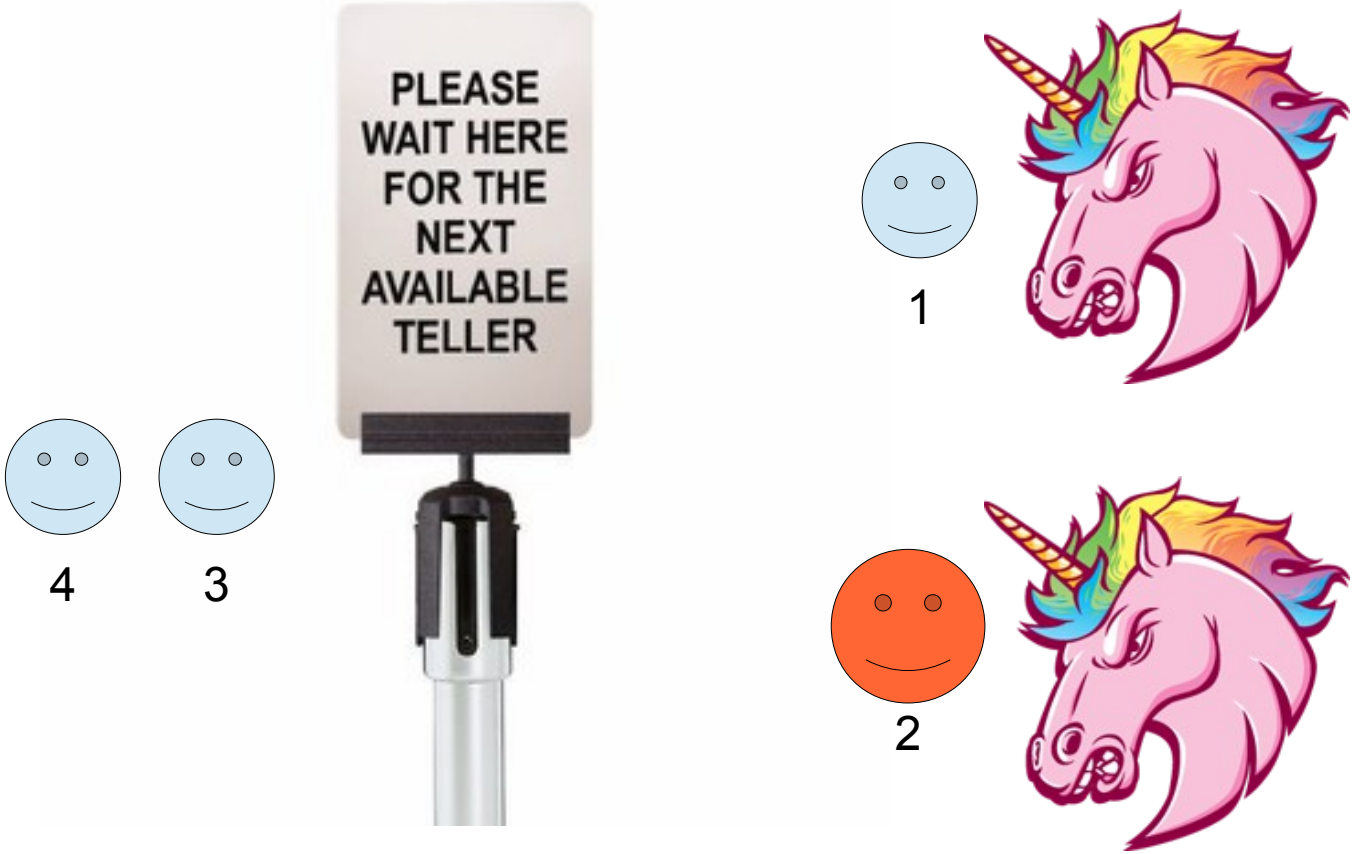

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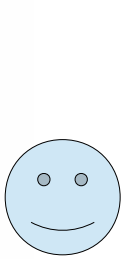

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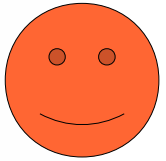

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[show unicorn example]

Unicorn – painless restarts with no downtime

- Based on obscure UNIX signals:

  USR2: start new copy

  WINCH: gracefully stop workers

  QUIT: graceful shutdown

  - Lots of other signals, e.g. reopening logs
- Write your own scripts to do it
- [show example]

Unicorn does not solve all problems

- Use something in front of ruby for
  - slow clients
  - static files
- Unicorn will occasionally die, so monitor it

  (because it is Ruby?)
- Rails still uses a lot of memory

Conclusion: a decent server setup