Multi-Node Processing

Stuart Blackler

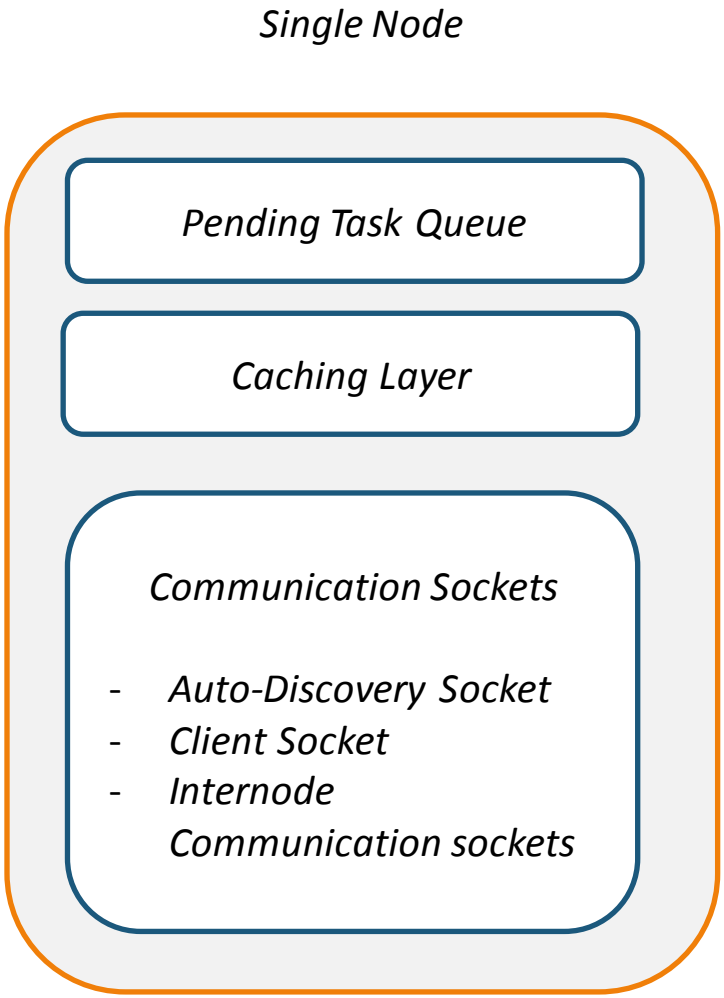
Who am I?

- Software/Database Developer currently at Bournemouth University (Computing)
- Most comfortable when developing with C#/VB.net/T-SQL
- Completely self-taught with (almost) 3 years commercial experience
- Occasionally blog about SQL/.Net Development over at http://sblackler.net/

The Problem

- Many websites usually have a complex unit of work that needs to be completed (Eg: Recommendation systems)
- It can, potentially, take a long time to complete the unit of work
- Websites can easily generate large amounts of traffic, so there is a potential need to offload the work from front-end servers to back-end processing servers.

Design Architecture



Design Aims

- Everything is extensible
  - Write plugins for:
    - TCP/UDP sockets
    - Caching
    - Queuing
    - Serialisation Providers etc
- Fault tolerance
  - Nodes are all identical in terms of Caching/Queuing
  - When a new task is queued/cache entry added, data is replicated to other nodes
  - If the link to the client goes down, the node continues processing, adding the result to the cache

The Implementation

- Currently a work in progress, expected prototype completion early April
- Will be available via Github once initial prototype complete
  - I will post on #IWDev's Facebook page when ready
  - Pull requests/modifications welcome
- Makes heavy use of the Observer Pattern
- No Master/Slave arrangement. Every node is a master

Interesting Points

- End product should be able to run on Mono
- Tasks can be written in nearly any language
  - As long as it can be used by the CLR/DLR
  - EG: Tasks can be written in Python/F#
- Core library contains some useful collection extensions for .Net developers:
  - ManagedStack<T> - Creates a Stack that makes a program wait when the resources are depleted

Questions?

- Any questions/ideas feel free to come and chat to me or:
  - Twitter: @stublackler
  - Email: stuart@sblackler.net
  - Facebook: IW Dev page
  - GitHub: SBlackler

- Slides available:
  - http://dl.sblackler.net/mnp.pptx
  - http://dl.sblackler.net/mnp.ppt
  - http://dl.sblackler.net/mnp.pdf