Session 2 – Performance and Scalability Aspects of Blockchain

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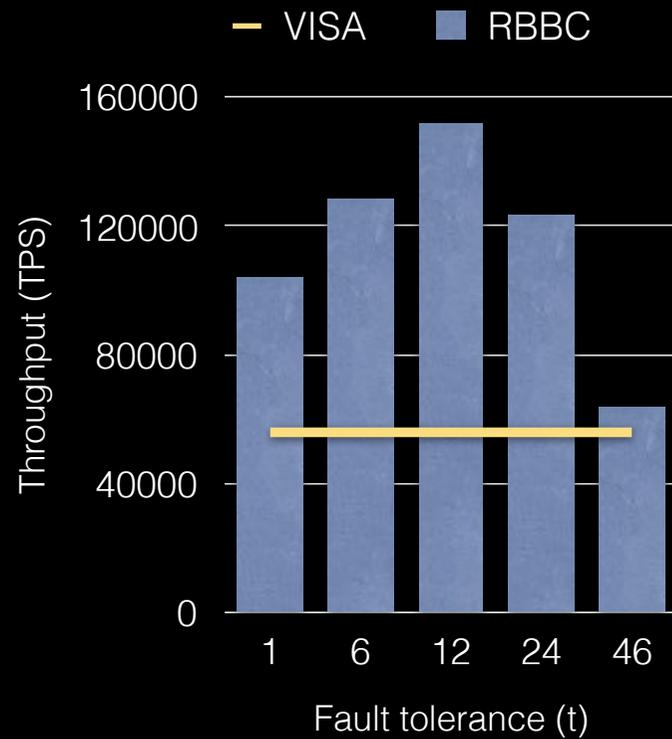
Programme

- The Red Belly Blockchain: consistency and scalability
  - Vincent Gramoli, University of Sydney, Australia

- Can we trust blockchain as a public utility? The performability aspect
  - Andras Pataricza, Budapest University of Technology and Economics, Hungary
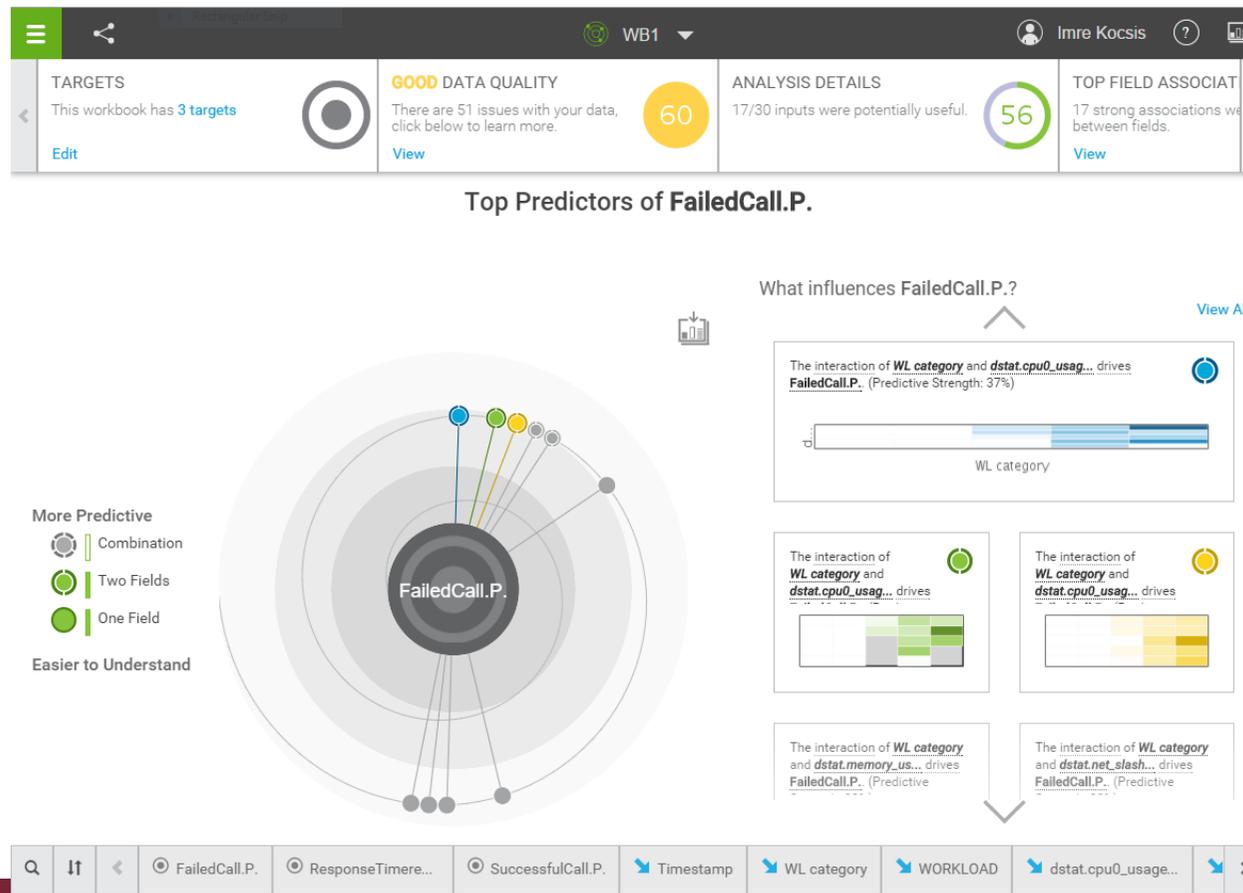
Impressions

- Red Belly Blockchain
  - Definitely not snake oil!
  - Very clear motivation and presentation of model and assumptions
  - Realistic performance evaluation and interesting analysis of findings
  - Some surprising results / bottlenecks etc.
- Can we trust blockchain as a public utility?
  - Answer – not yet
  - Impressive breadth and depth of performability analysis – repay careful study
  - Use of business intelligence analytics to explore bottlenecks
  - Sophisticated statistical analysis using automated tools rather than statisticians

World-Wide Deployment
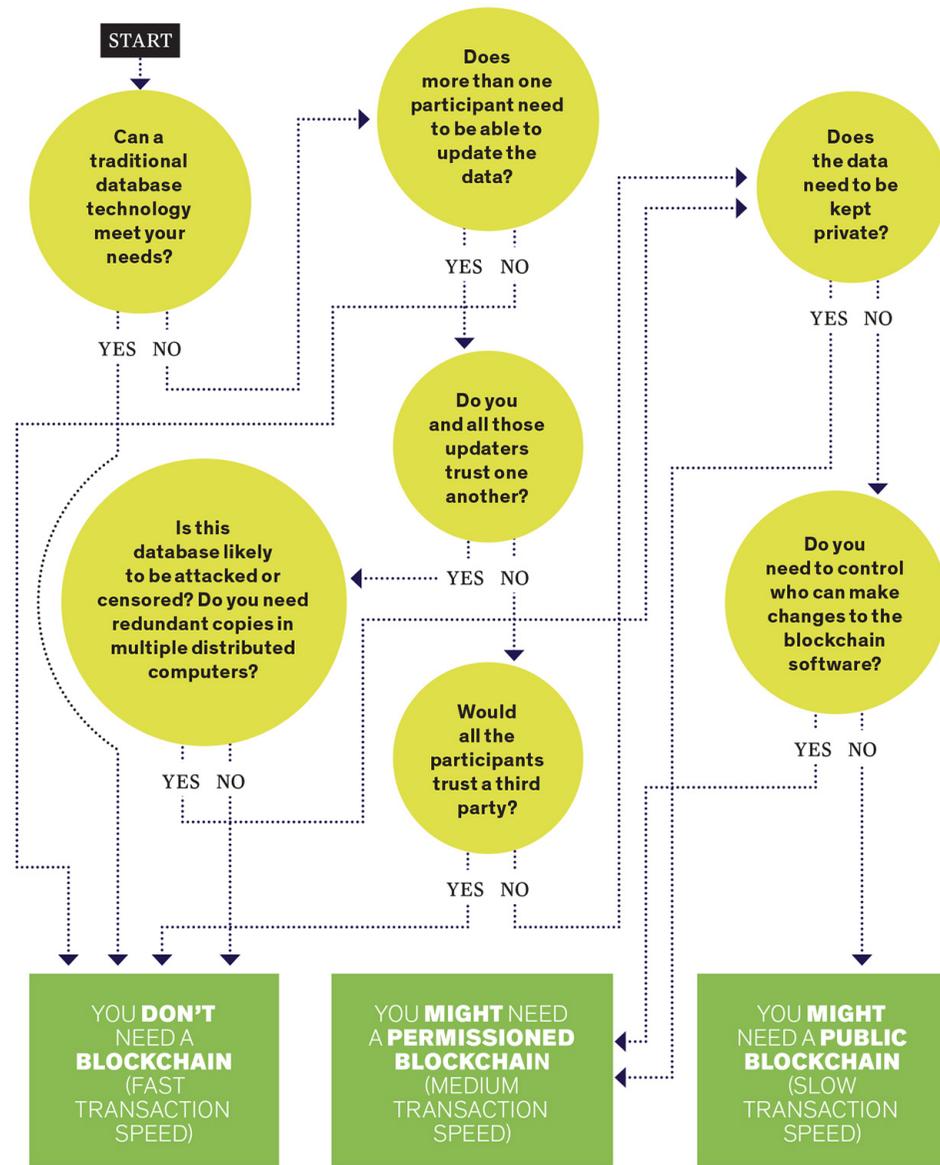
c4 instances, 4 vCPU, 7.5 GiB, 750 Mbps, n=140

Business intelligence for automated discovery of qualitative hypotheses

Discussion

- Is blockchain a solution looking for a problem?
- What are the use cases / applications for blockchain?
- New application of old ideas – a chance to dust down the BFT papers
- Harder than it seems – where are the sweet spots?
- Analogy with software defined networks
- IEEE Spectrum decision tree – "Do you need a block chain?"

- "Not a field fit for gentlemen"
- "A convenient way to do money laundering"

START

Can a traditional database technology meet your needs?
YES   NO

Does more than one participant need to be able to update the data?
YES   NO

Does the data need to be kept private?
YES   NO

Do you and all those updaters trust one another?
YES   NO

Is this database likely to be attacked or censored? Do you need redundant copies in multiple distributed computers?
YES   NO

Would all the participants trust a third party?
YES   NO

Do you need to control who can make changes to the blockchain software?
YES   NO

YOU **DON'T** NEED A **BLOCKCHAIN** (FAST TRANSACTION SPEED)

YOU **MIGHT** NEED A **PERMISSIONED BLOCKCHAIN** (MEDIUM TRANSACTION SPEED)

YOU **MIGHT** NEED A **PUBLIC BLOCKCHAIN** (SLOW TRANSACTION SPEED)

https://spectrum.ieee.org/computing/networks/do-you-need-a-blockchain