

loT and Blockchain

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Outline

Virtual machines

Raspberry Pis

Virtualized RPIs

What is a Virtual Machine?

A machine that emulates another machine

Church-Turing thesis and universal Turing machines

Cloud – super-scaling through portability of processing

Why Virtual Machines?

Master/slave VMs

Autonomous VMs

Orchestrating complex systems Emulating many machines

Virtual Machines Models

Saving state

Virtual networks

Sharing resources Generating consensus

Why Raspberry Pis?



Will IoT adopt mostly to Turing complete computers? Much IoT will be for non-Turing complete computers

What can we do with Raspberry Pis?

Ten Raspberry Pis for the cost of a good laptop Any advantage from ten Raspberry Pis?

General purpose autonomous computation Raspberry Pis are autonomous Raspberry Pis are general purpose

Virtual Machines for IoT?

IoT devices Combinatorial explosion of configurations

Planning and design before implementing

Emulators are key!

Towards mix and match emulation to keep up with the combinatorial explosion of hardware configurations

Client/Server



Network needed

System virtualization – DNS servers, routers, etc. Process virtualization – OS serves as communication hub



What can we do with Raspberry Pis?

Distributed consensus with autonomous machines

Paying for maintenance

Adding value

Distributed computing

Autonomous - Blockchains

Synchronized - Clockchains