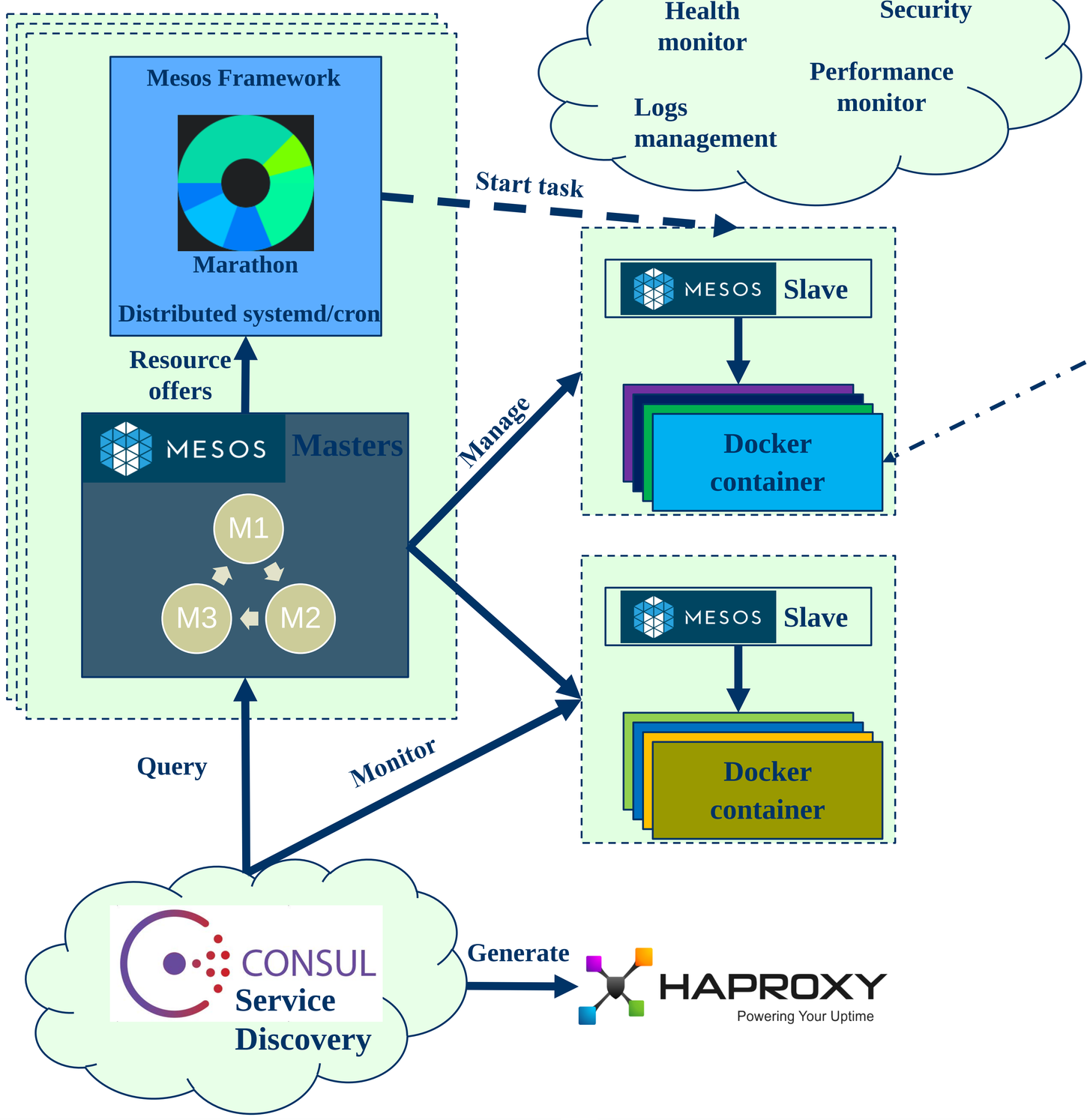
LHCbDIRAC as Apache Mesos microservices

G O A L

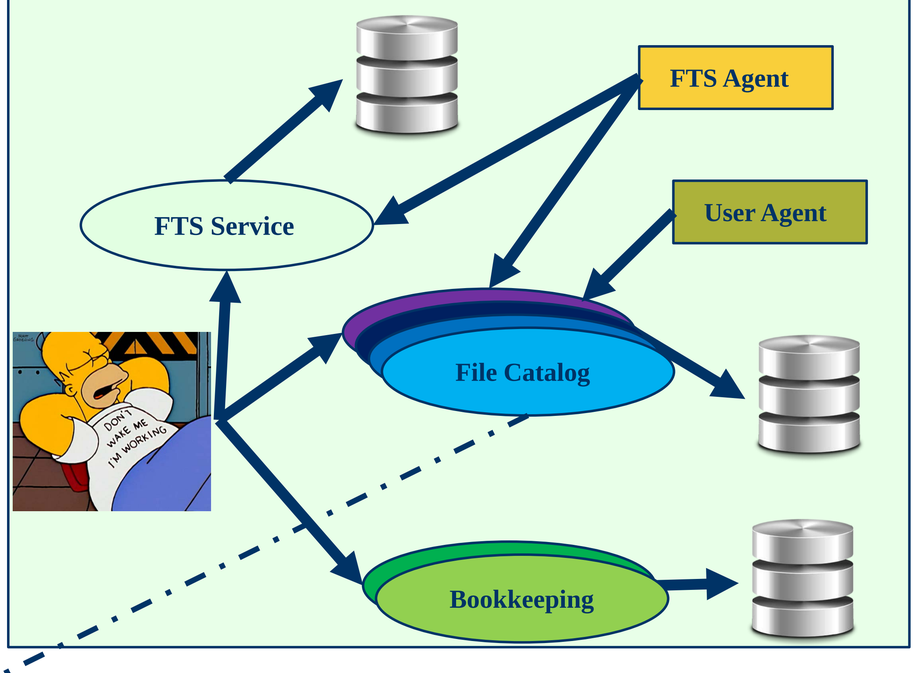
The boss : “I want X instances of my services running, now!”

Me: “Okay !”. *click* . “Done !”

The boss: “Excellent!”



Part of LHCbDIRAC Data Management System



- **LHCbDIRAC: composition of agents and services (relying on database)**
- **Service: stateless frontend, multiple instances of each for redundancy purposes**
- **Agent: periodically executed tasks, cannot always be duplicated**
- **LHCb installation: 134 service and 146 agent instances**

- **Apache Mesos ® for LHCbDIRAC:**
  - **Improves reliability and fault tolerance of the overall system**
  - **Eases their placement currently manual**
  - **Allows for dynamic scaling**

- High availability
- Automatic placement
- Full control of the environment
- Heterogeneity of the machines acceptable
- One click new release rollout
- One click (or automatic) scaling
- Not limited to LHCbDIRAC
- No change needed in LHCbDIRAC code

- Requires education and expertise
- Large infrastructure
- Everything can collapse
- Usual Docker® drawbacks:
  - Local data complicated
  - Monitoring
  - Traceability

Current status

- Manual test setup with 3 masters, 5 slaves
- Independent LHCbDIRAC setup with about 20 components
- Happy with the reliability and ease of use
- Next steps:
  - Puppet profile of the hosts
  - Simplify administration
  - Integrate with the usual testing platform
  - Go in production

* Hey Matt, no copyright infringement intended!

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