

Trusted grid

What are the concrete requirements right now?

Delegation of roles

Management of business-critical data (how much trust?)

Sandboxed environments (how strong is the isolation?)

Expression, management, and enforcement of policies and contracts

Interoperability with existing middleware

Futures?

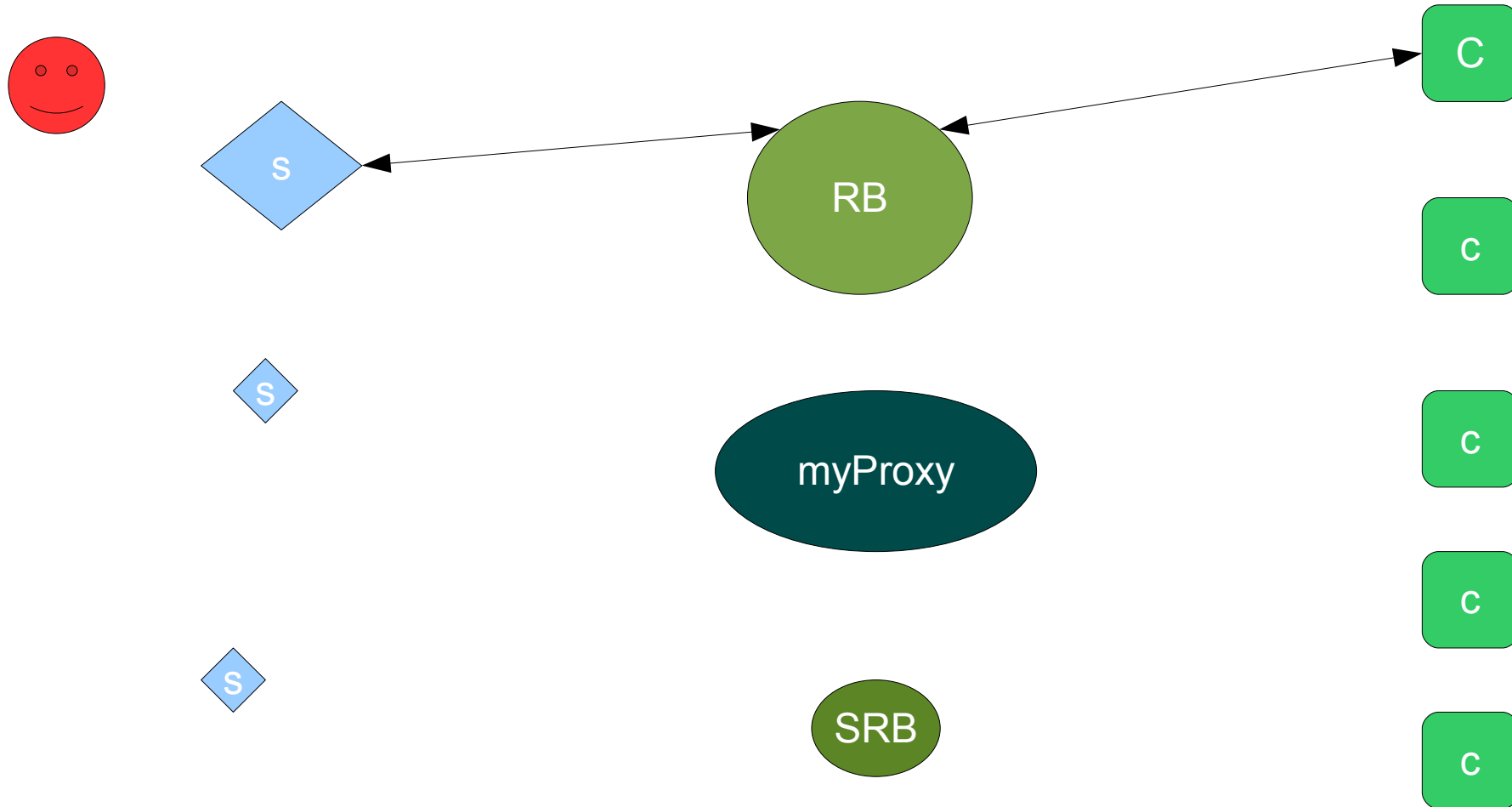
public-resource grid (SETI@home, *climateprediction.net*)

Widespread heterogeneity; contract on the environmental conditions

Higher assurance

Trusted Condor?

Use case: current brokered grid nodes



Policy/property requirements

- identity of hardware (is it important to know which nodes make up the grid? yes. fixed identity, without knowing the properties of the system, necessarily. THEN ask what are the components of that system)
 - this is a requirement for the system administrators; not for the users (except in some debugging scenarios); in order to offer the service, administrators/system software needs this
 - users are interested in the *class* of hardware sometimes
- identity of software state
- strong assertion of characteristics of service
 - owner of equipment/accountability in both directions...audit
 - confidentiality of data
 - integrity of job/execution/results
 - conformance to requirements

What would the user like to specify?

- RBAC for data, [or indeed, user-centric DRM; only the processor gets the clear text]
- [list of] acceptable processor endpoints/owners
- diversity of job distribution
- integrity of job execution
- confidentiality of parameters/inputs
- provenance data / results
-
- provide encrypted data; decryption only in particular context; results similarly encrypted (sealed? signed?)
-
- [entire environment from boot upwards]
-
- inherit policy; adapt to scenario; not start from scratch

distributed grid storage

VM on each storage node manages an area of
disc storage

scope for multiple redundant copies; RAID-5 or
similar

data is strongly isolated from other users

instrument sharing

strong identity and strong input validation needed

Next steps

Build prototypes

Trusted-GSI

Trusted MyProxy (SHEMP project doing this?)

Write paper on data storage

privacy and legal issues/liability etc.

Public sector applications of these ideas?