# ForCES Applicability for DMM PFC

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ForCES Architecture In A Nutshell

- A protocol (The *Verbs*)

  – A modular transport for the protocol

- A data model (The *nouns describing resources*)

  – Logical Functional Block which are constructs that describe the resource

- Combine the above and you have a language

  – [*<verb> <noun>* [args]]+

    - Anti-RPC
      – Few verbs but infinite possibilities of nouns

ForCES Architecture In A Nutshell
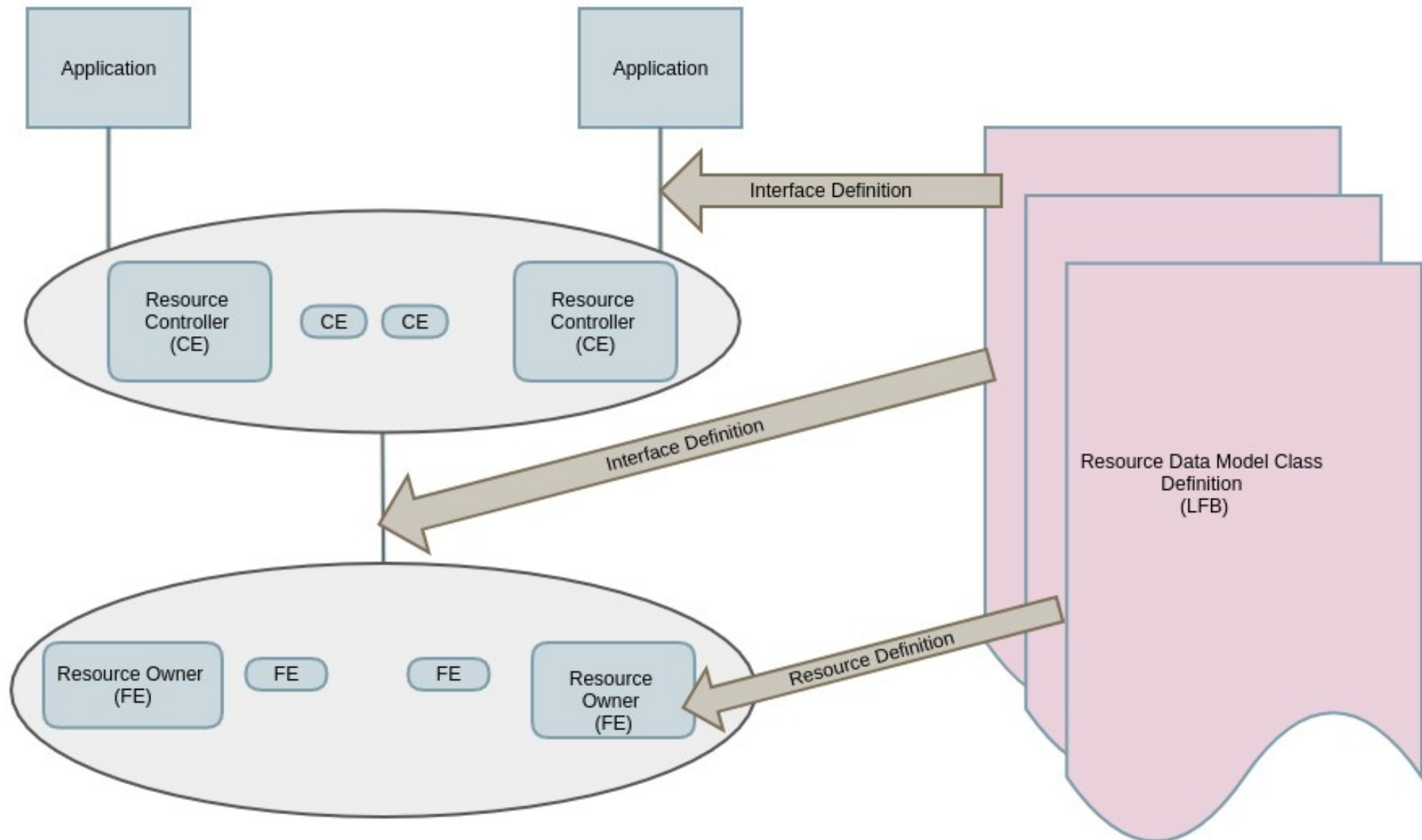
Protocol Semantics

- Transport independence

- Simple Verbs

  - Content independence (unlike RPC approaches)

- Optional Transactional capability (2PC)

- Various Execution modes

- Desire for high throughput and low latency

  - optional data batching and command pipeline

  - Binary encoding key

- Security

- Traffic Sensitive Heartbeating

- Optional High Availability

Protocol Semantics

- Rest-like Request-response Verbs
  - SET, GET, DELETE, etc
- Publish-Subscribe semantics
  - Event thresholding etc

LFB Class

- Object oriented resource definition
- Each class has definitions for:
  - Datatype, components, Capabilities, Events
- Multiple instances of an LFB class can be created/instantiated.
  - Fit for Multi-tenancy
  - Each class instance has its own:
    - State/config
    - capabilities
    - events

LFB Datatype Definitions

- Formal constraints for validation of defined attributes

- Atomic types, complex/compound types,

- grouping of compound types in the form of structures and indexed/keyed tables

- Hierarchical/tree semantics

- Aliasing to symlink shared infrastructure

- Optionality and default values

- Basic ACL (RW permissions)

LFB Class Definitions

- Components

  - data type definitions of control/config/state resource attributes acted on by a controller via the ForCES protocol

- Capability

  - definitions of resource capabilities and capacities advertised by the resource owner

- Events

  - hooks for publish/subscribe with expressive trigger and report definitions
    - count, threshold which could be binary, range, or time which could be formed into a compound expression using and/or operators

LFB Class Extensibility

- Inheritance and extension of a parent class

- Inheritance and extension of data definitions

- Backward and forward compatibility of LFB classes and defined data structures

  – Versioning

  – Be liberal in what you expect and conservative in what you do

Fit With DMM

- Good fit for Forwarding Policy Configuration (FPC)

  – Information model that easily mapped to data model

  – Protocol Semantic easily mapped to protocol

Question

- Would the WG be interested in such work?