



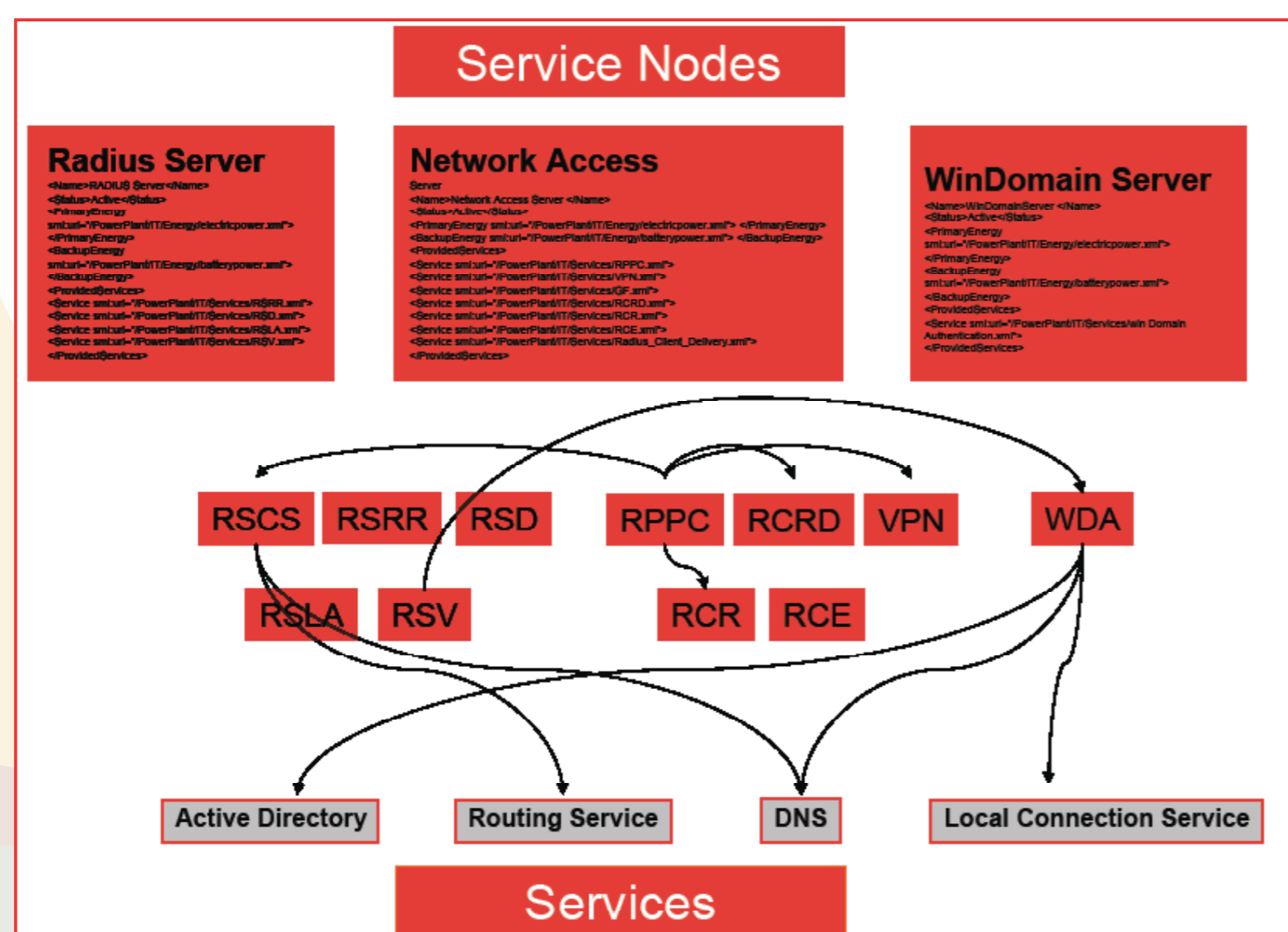
# Joint Research Centre

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## Service Modeling Language applied to Critical Infrastructure

### Scope

We propose a modeling methodology where dependencies are described in terms of the service offered by the critical infrastructure and its components. The model provides a clear separation between services and the underlying organizational and technical elements, which may change in time. The model uses the Service Modeling Language proposed by the W3 Consortium for describing critical infrastructure in terms of interdependent services nodes including constraints, behavior, information flows, relations, rules and other features.



### Service Modeling Language

A model in SML is realized as a set of interrelated XML documents. The XML documents contain information about the parts of system, as well as the constraints that each part must satisfy for the system (or critical infrastructure) to function properly.

### Schematron rule

```
<sch:pattern id="ServiceStatus">
  <sch:rule context=".">
    <!-- define a named variable - MyServices- for use in test expression-->
    <sch:let name="MyServices" value="smfn:deref(sm:ProvidedServices/sm:ServiceRef)/">
    <sch:assert test="@Status='Valid' and count($MyServices)= count($MyServices/sm:Status[@Status='Valid'])">
    </sch:assert>
    </sch:rule>
  </sch:pattern>
```

### Power Plant Backbone

