

BT Group

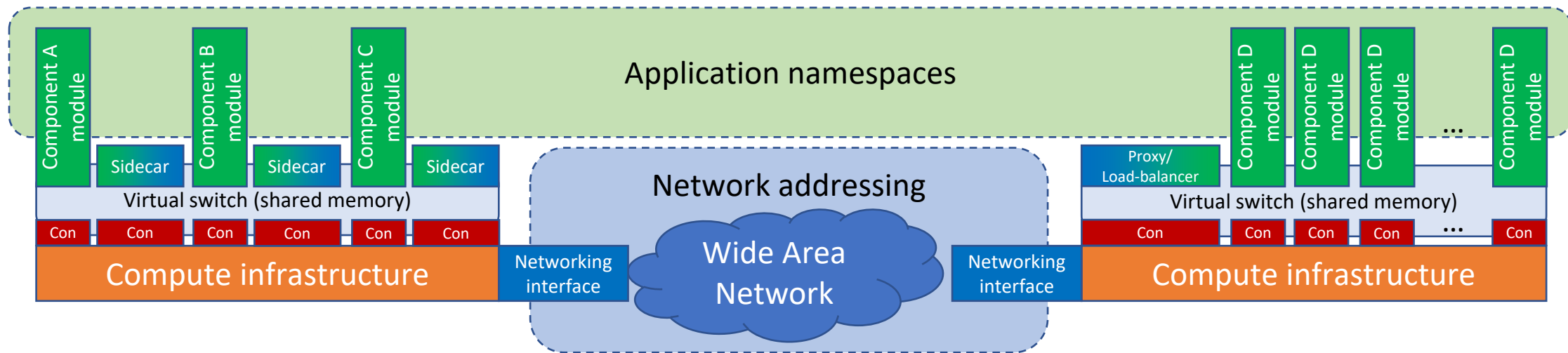


Namespaces, Security, and Network Addresses

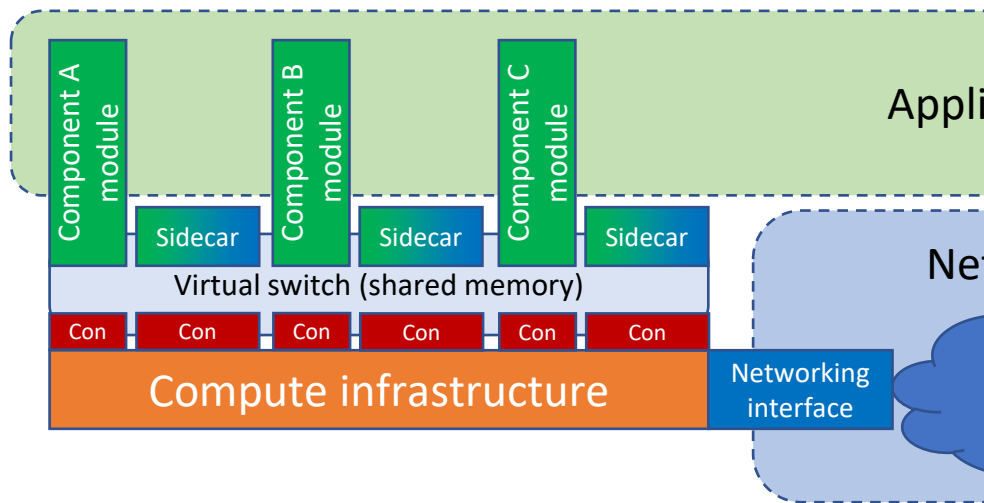
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Namespaces and Network Addressing



Namespaces and Network Addressing

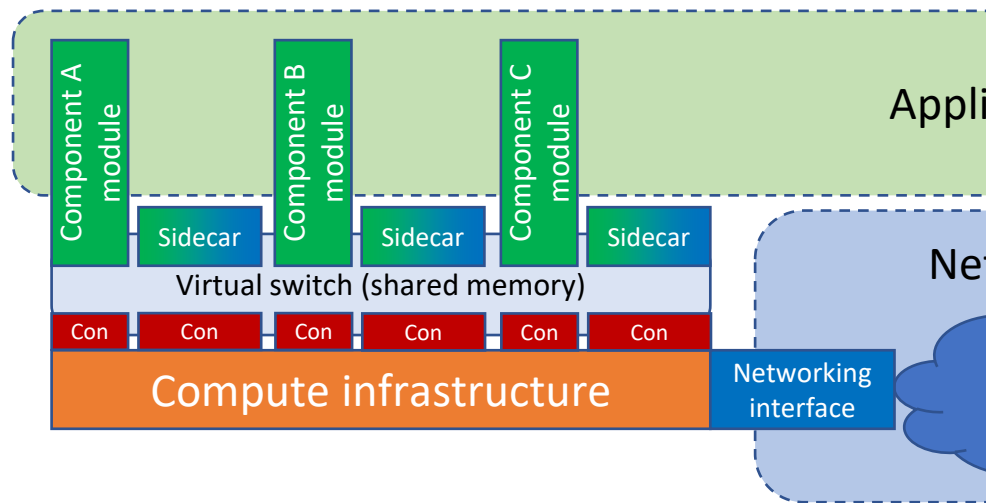


- Application development - microservice is unit of
 - Code development (especially to the 'agile agenda')
 - Service abstraction
 - Heterogeneity of development/runtime environments
 - Integration (eg the modules of a CI/CD pipeline)
 - Distribution
 - Interaction with networking

----- • Microservices boundary

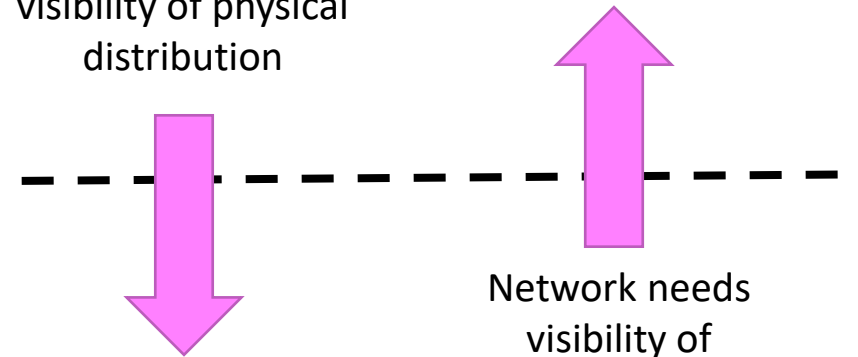
- Routing and addressing
 - Microservice is networking end-point
 - Extensive use of networking 'extensions'
 - Secure tunnelling
 - Private addressing
 - NAT/PAT
 - Load balancers/firewalls/sidecars
 - Extensive use of management tools – loosely 'orchestration'
 - Creation of secure tunnels
 - Creation of private networks
 - Management of DNS
 - Address allocation, domain name allocation

1. Linkage Between – Application Development and ‘Orchestration’



Application development

Application development needs visibility of physical distribution



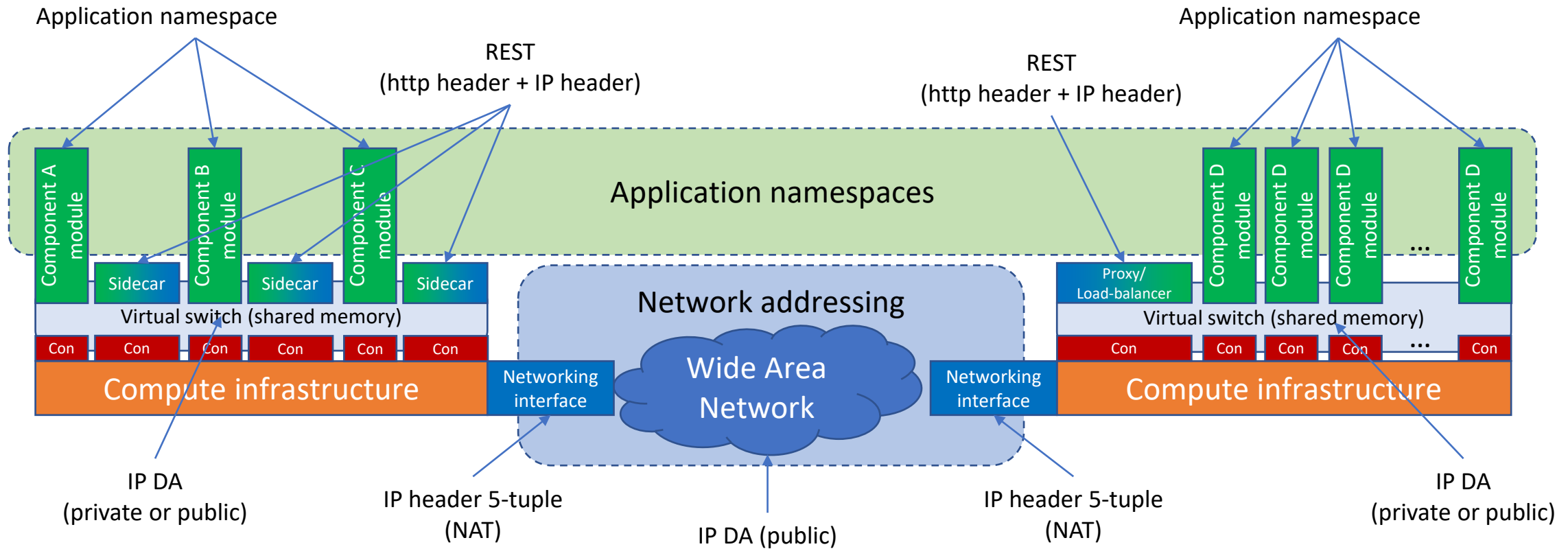
Dynamic optimisation of functional aggregation and placement

Network needs visibility of functions within microservice

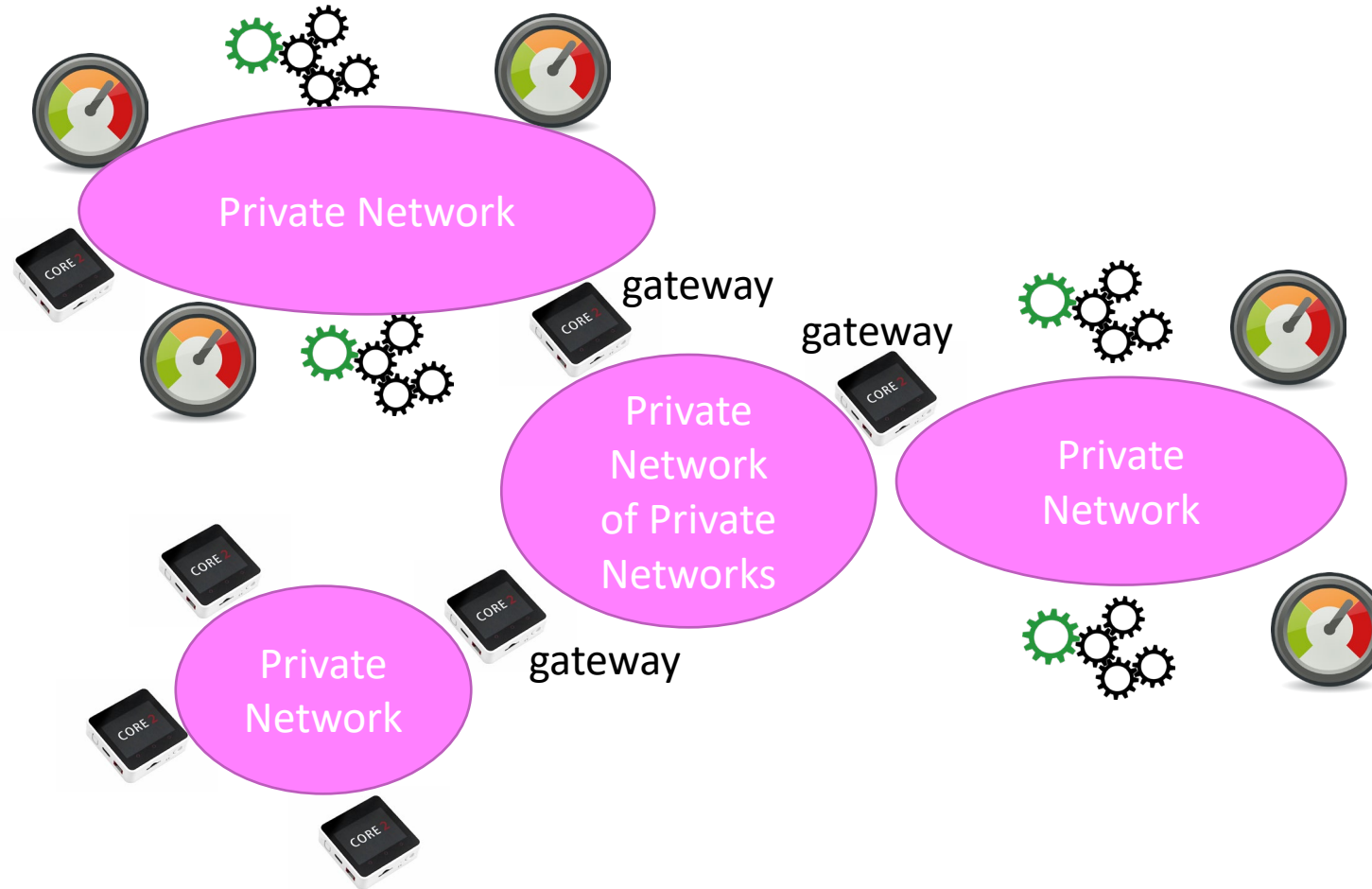
Network routing and addressing

- Application can support direct call to function without prior reference to distribution
- Mapping of function to addressing is done by transparently by compiler/linker/orchestrator

2. Layering by Observation



3. Extensible Private Addressing



- Easy and secure mapping from application namespace to private address
- Private networking adds to security
- Private addressing can be dynamically pre-fixed into a wider context
- Embraces many 'extensions' in use today
- Easy integration with fieldbus networking
- *Private addressing should be taken as the norm not the exception*

<https://piccolo-project.org/>

