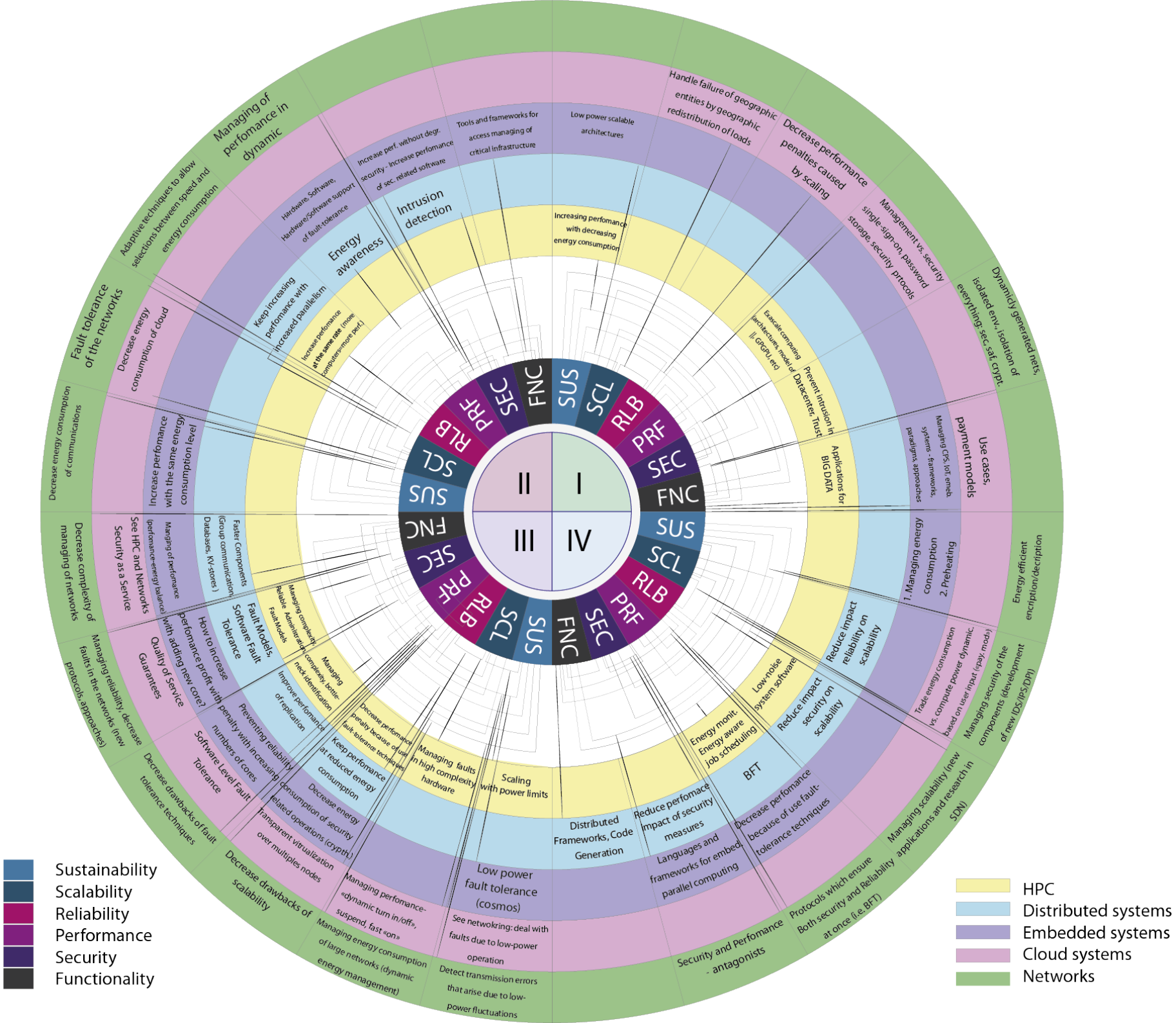
I
II
III
IV
SUS
SCL
RLB
PRF
SEC
FNC
Sustainability
Scalability
Reliability
Performance
Security
Functionality
HPC
Distributed systems
Embedded systems
Cloud systems
Networks
Increasing perfomance with decreasing energy consumption
Low power scalable architectures
Tools and frameworks for access managing of critical infrastructure
Handle failure of geographic entities by geographic redistribution of loads
Decrease performance penalties caused by scaling
Management vs. security single-sign-on, password storage, security prtocols
Dynamicly generated nets, isolated env., isolation of everything; sec saf, crypt.
Energy efficient encription/decription
Managing security of the components (development of new IDS/IPS/DPI)
Managing scalability (new applications and research in SDN)
Protocols which ensure Both security and Reliability at once (i.e. BFT)
Security and Perfomance - antagonists
Decrease drawbacks of scalability
Decrease drawbacks of fault tolerance techniques
Managing reliability, decrease faults in the networks (new protocols, approaches)
Decrease complexity of managing of networks
Decrease energy consumption of communications
Fault tolerance of the networks
Adaptive techniques to allow selections between speed and energy consumption
Managing of perfomance in dynamic
Energy awareness
Intrusion detection
Hardware, Software, Hardware/Software support of fault-tolerance
Increase perf. without degr. security - Increase perfomance of sec. related software
Keep increasing perfomance with increased parallelism
Increase perfomance at the same rate (more computers=more perf.)
Decrease energy consumption of cloud
Increase perfomance with the same energy consumption level
Exascale computing architectures, model of // GP(GPU, etc)
Prevent intrusion in Datacenter, Trust
Applications for BIG DATA
Use cases, payment models
Managing CPS, IoT emeb. systems - frameworks, paradigms, approaches
1. Managing energy consumption
2. Preheating
Trade energy consumption vs. compute power dynamic, based on user input (xpay, mod.)
Reduce impact reliability on scalability
Reduce impact security on scalability
Low-noise system software
Energy monit. Energy aware job scheduling
BFT
Decrease perfomance because of use fault-tolerance techniques
Reduce perfomace impact of security measures
Languages and frameworks for embed.-parallel computing
Distributed Frameworks, Code Generation
Scaling with power limits
Managing faults in high complexity hardware
Decrease perfomance penalty because of use fault-tolerance techniques
Keep performance at reduced energy consumption
Decrease energy consumption of security related operations (crypth.)
Low power fault tolerance (cosmos)
See networking: deal with faults due to low-power operation
Detect transmission errors that arise due to low-power fluctuations
Managing perfomance- «dynamic turn in/off», suspend, fast «on»
Managing energy consumption of large networks (dynamic energy management)
Transparent virtualization over multiples nodes
Preventing reliability with increasing numbers of cores
Software Level Fault Tolerance
Improve performance of replication
Managing complexity, Reliable Administration, complexity bottle-neck identification
Fault Models, Software Fault Tolerance
How to increase perfomance profit with adding new core?
Quality of Service Guarantees
See HPC and Networks Security as a Service
Faster Components (Group communication, Databases, KV-stores)
Managing of perfomance (perfomance-energy balance)