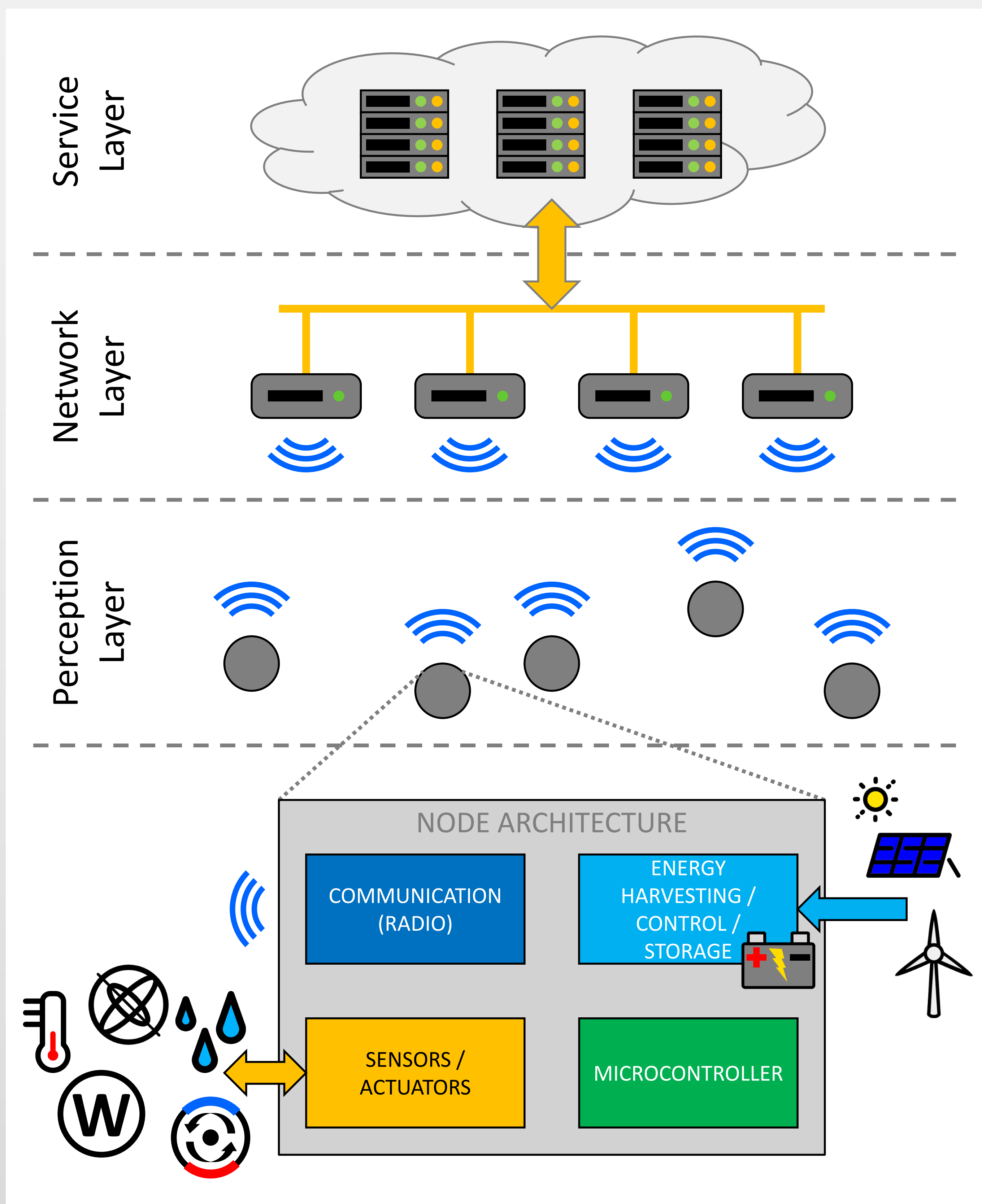


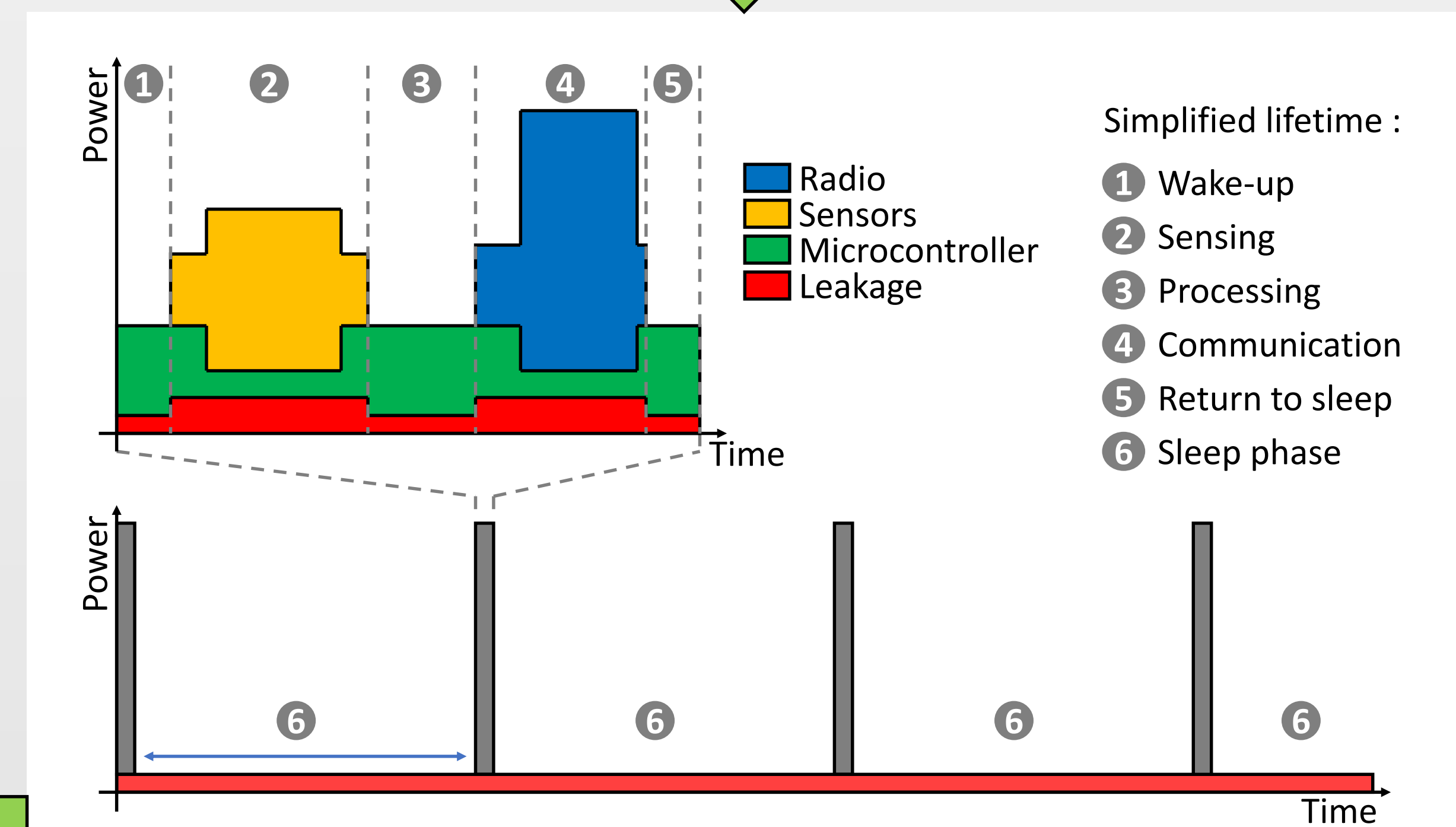
Using benefits of emerging Non-Volatile memories in Ultra-Low Power systems-on-chip to reduce power consumption for Internet of Things devices



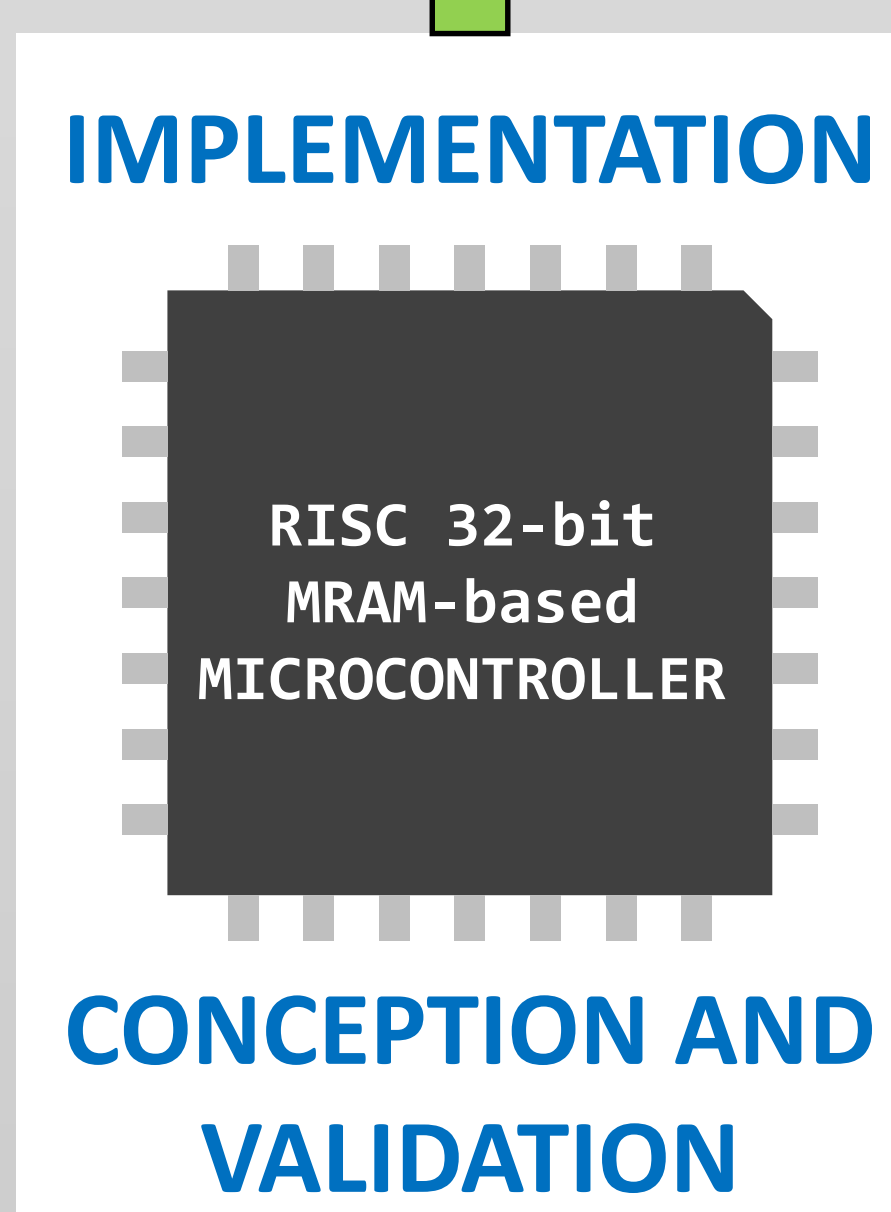
High constraints:

- Reliable
- Secure
- Low cost
- **Small**
- **Long lifetime**

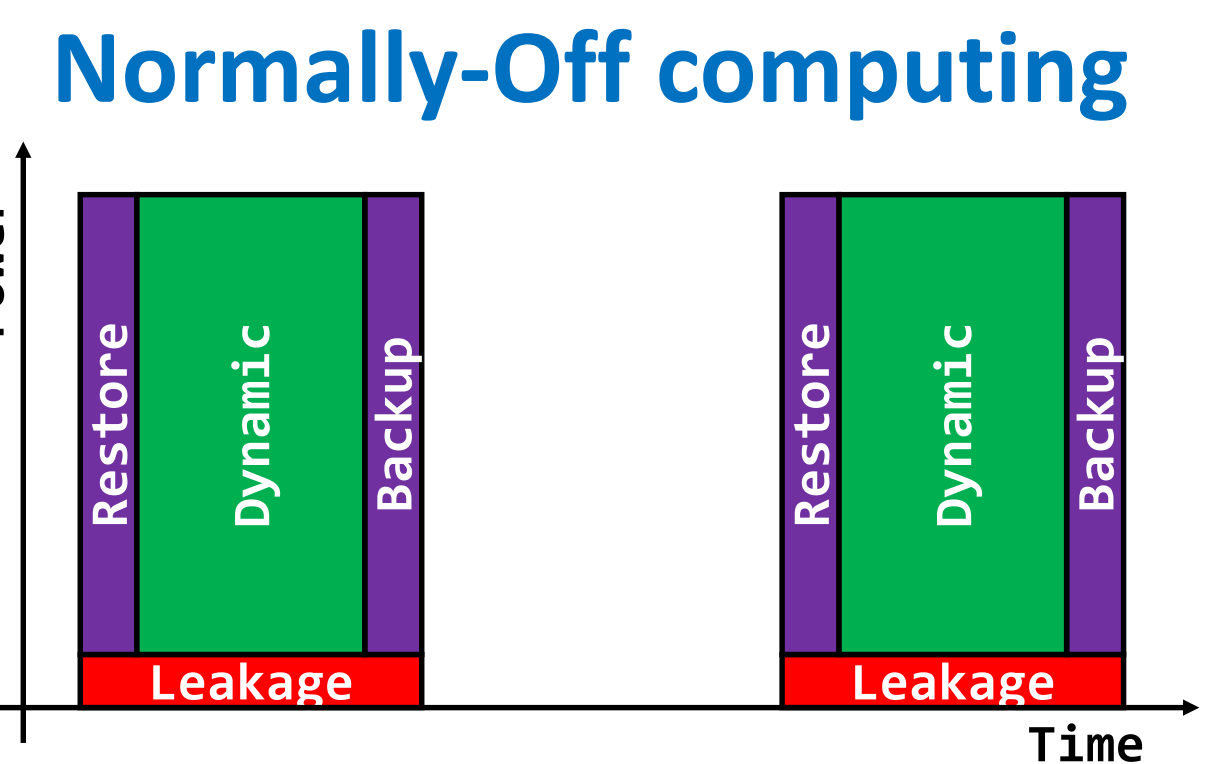
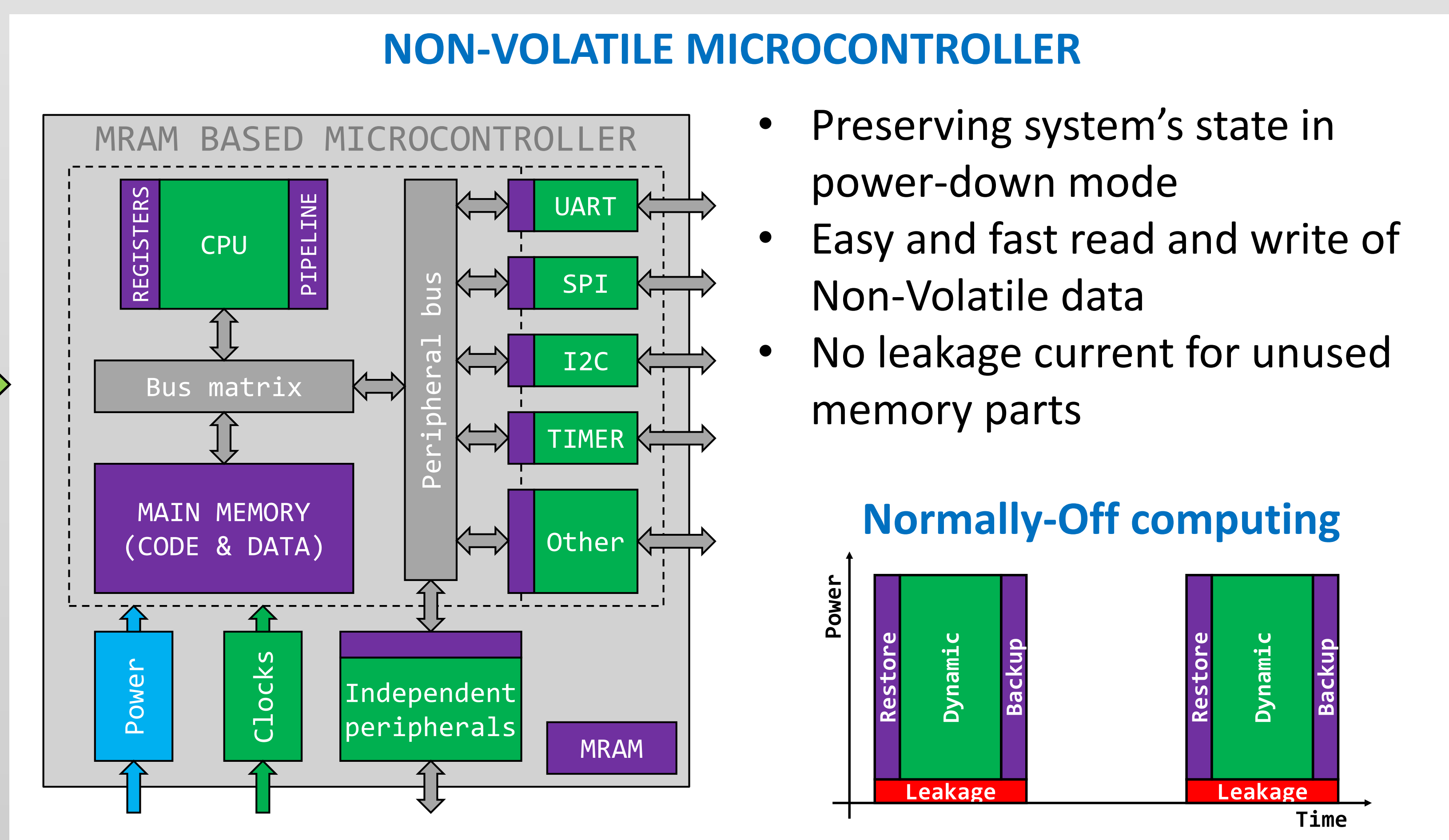
Reducing the battery and other energy sources' size means less energy available. To ensure long lifetime, power optimization is crucial.



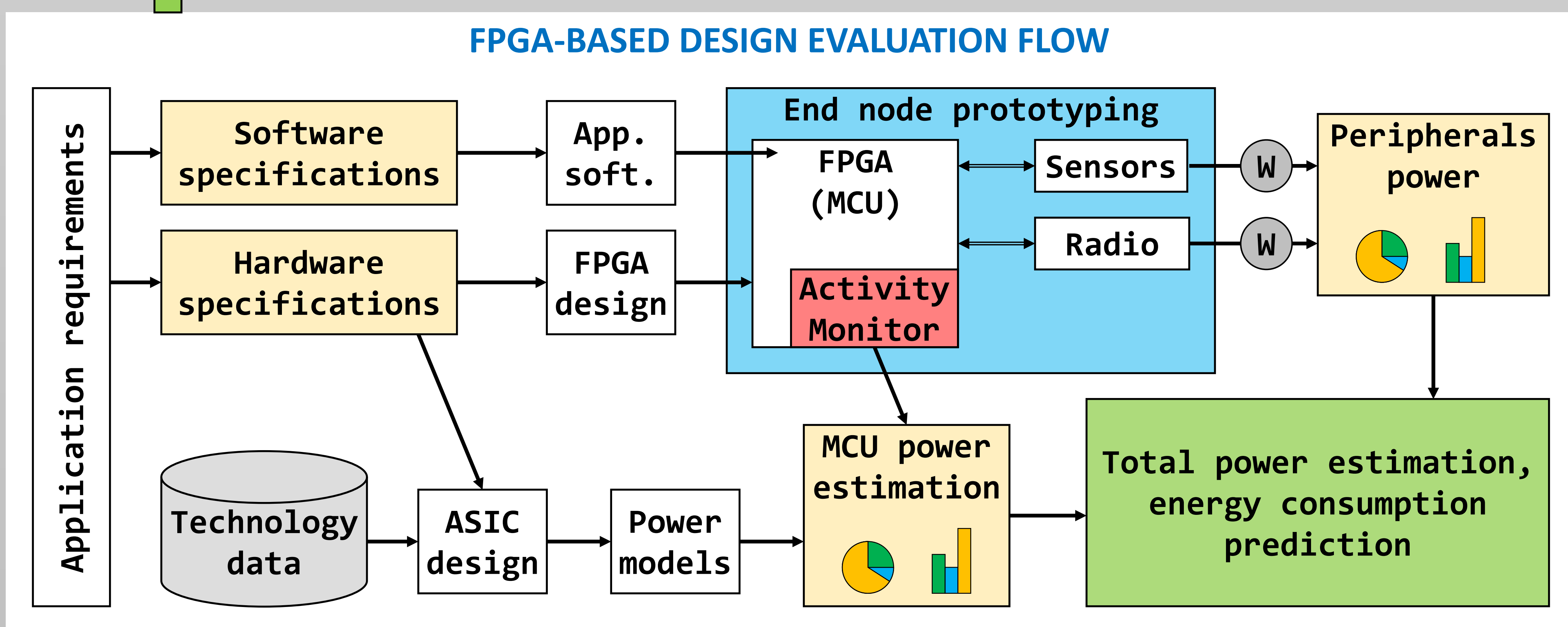
In a lot of Internet of Things applications, the energy lost during sleep phases and by inactive components has a significant impact on the node's lifetime.



When unused, peripheral devices can be powered down. However, putting the microcontroller into lowest power mode (main power domain off) is not always the best solution, because of long wake-up and application reloading time.



Application level evaluation is necessary to ensure optimal integration of emerging technologies.



FPGA-based prototyping is faster than simulation, can be interfaced with commercial or custom devices and so can be deployed with other nodes for application level evaluation.

The MASTA project, which has received funding from the French National Research Agency under grants ANR-15-CE24-0033-01, has been launched with objective the exploration of MRAM memories in ULP SoCs.