

Systems Engineering Fundamentals Partitioning and Interfaces

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Abstract

The presentation explains fundamental concepts of and approach to system partitioning .

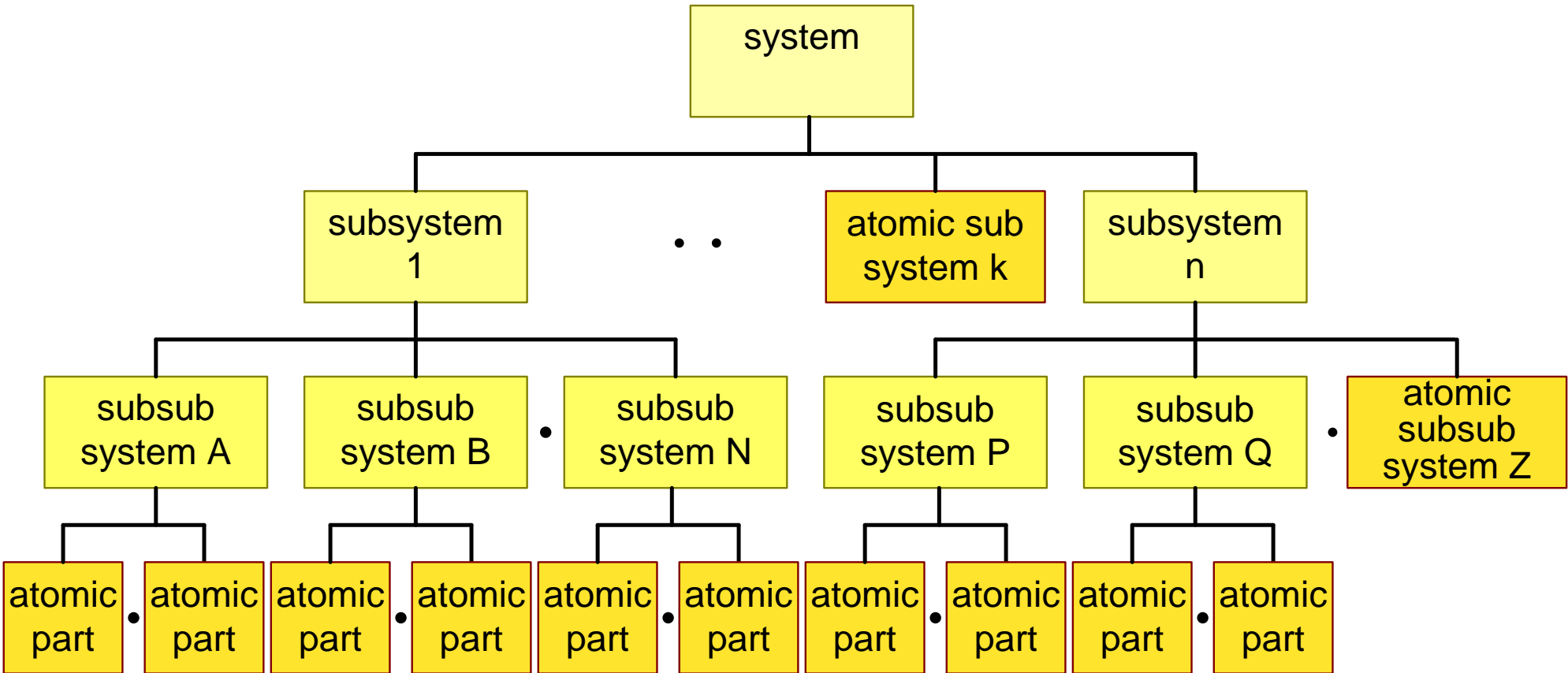
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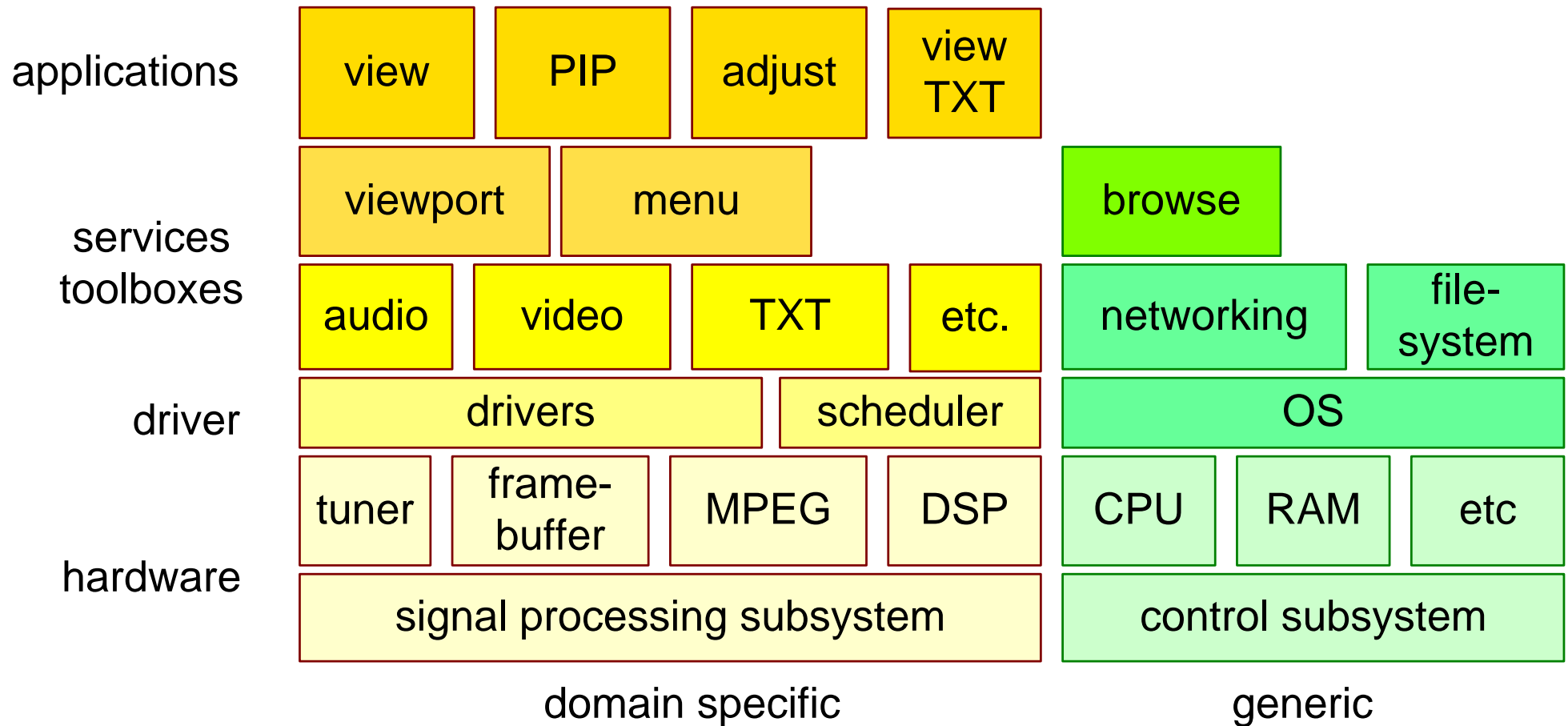
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Partitioning is Applied Recursively



Software plus Hardware Decomposition



the part is cohesive

functionality and technology belongs together

the coupling with other parts is minimal

minimize interfaces

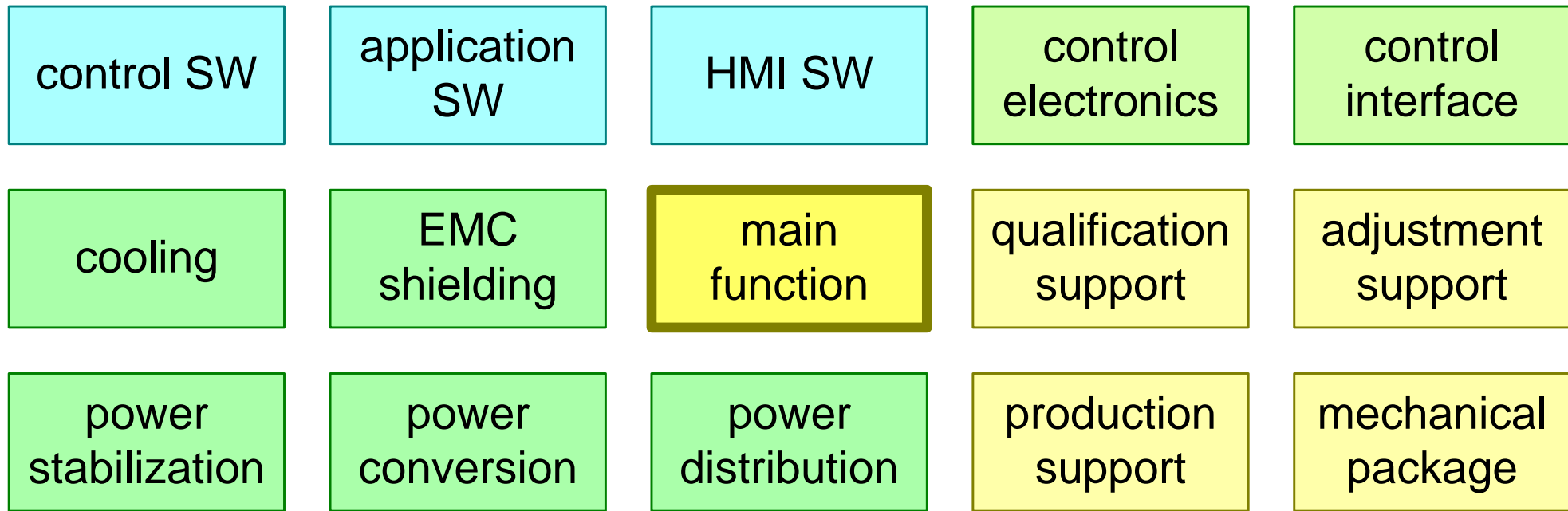
the part is selfsustained for production and qualification

can be in conflict with cost or space requirements

clear ownership of part

e.g. one department or supplier

How much self-sustained?



How self sustained should a part be?

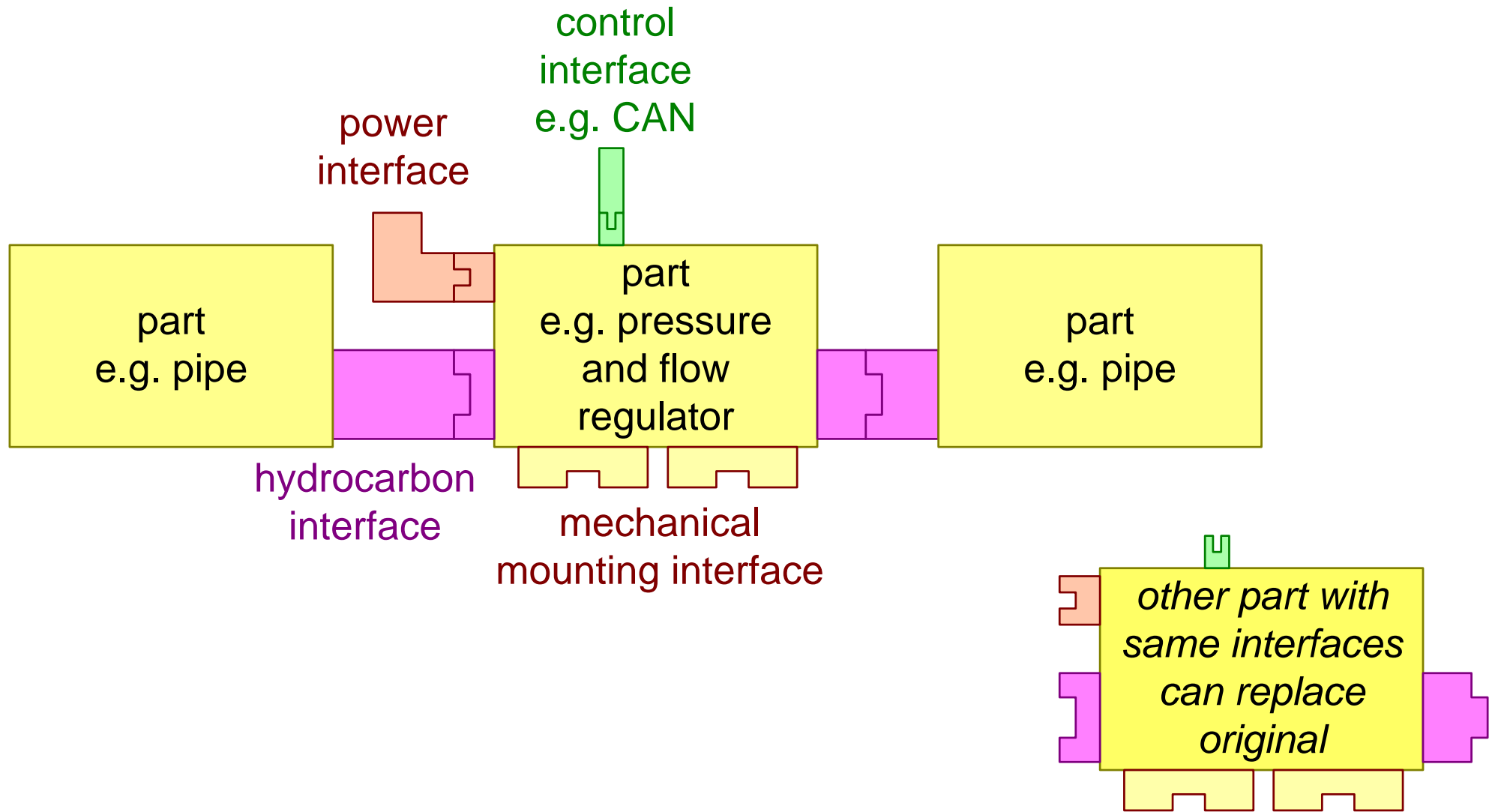
trade-off:

cost/speed/space
optimization



logistics/lifecycle/production
flexibility
clarity

Decoupling via Interfaces



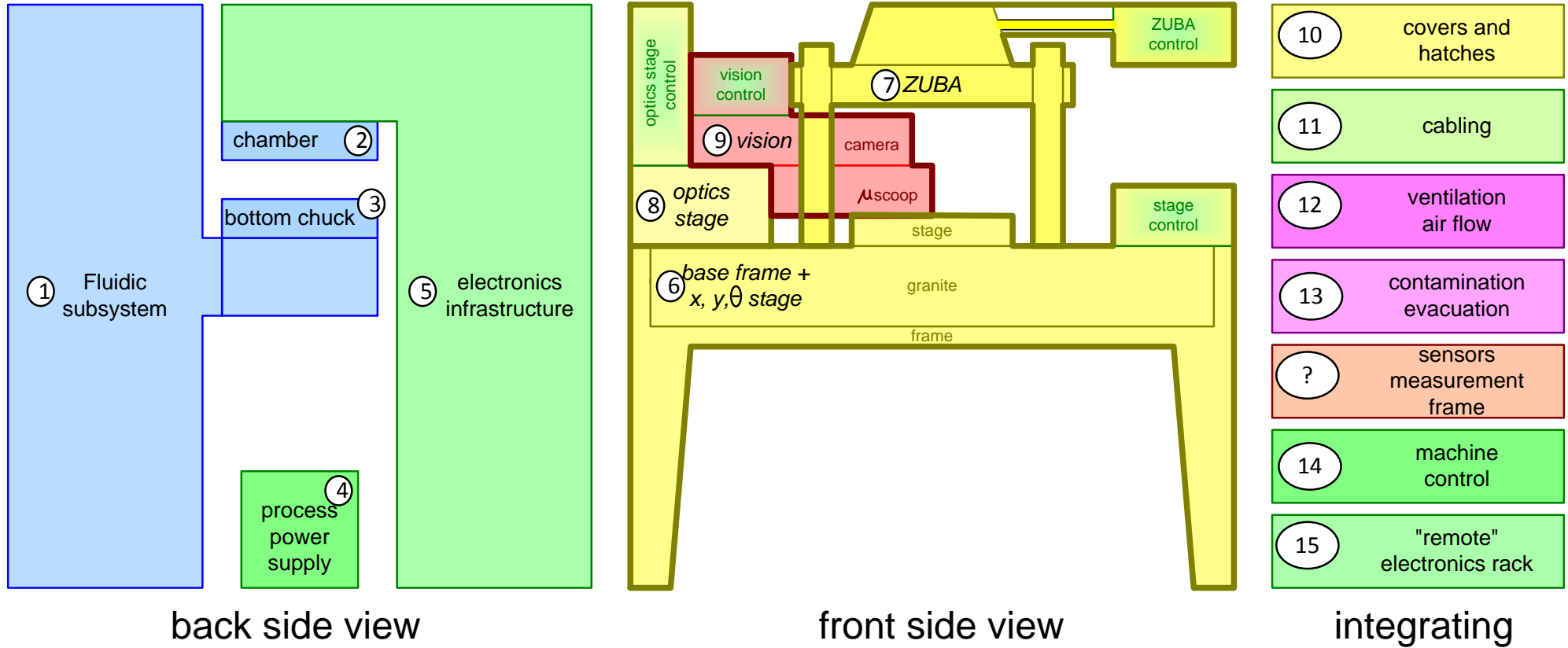
The Ideal Modularity

System is composed

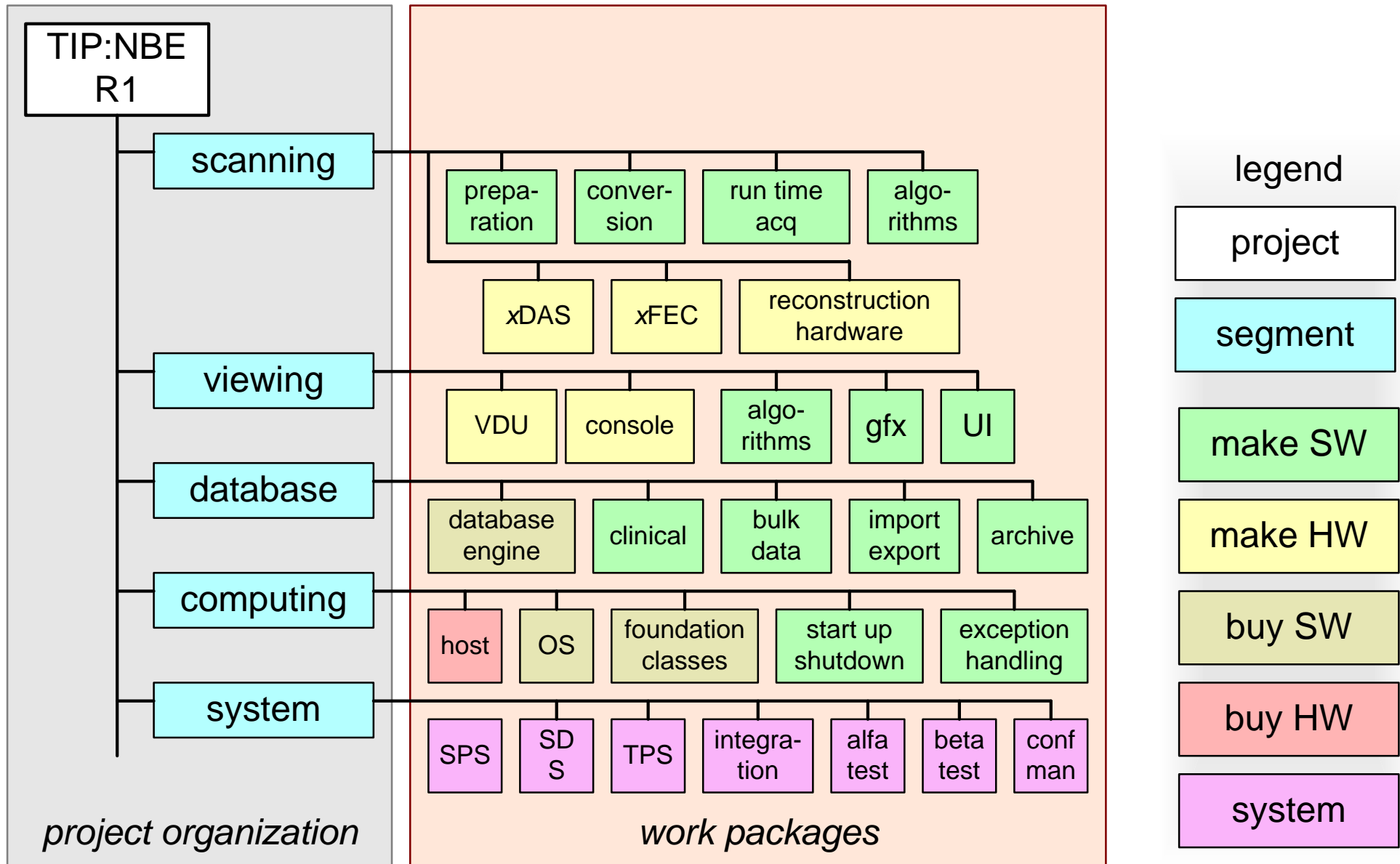
by using standard interfaces

limited catalogue of variants (e.g. cost performance points)

Example Physical Decomposition and Visualization



Example Work Breakdown Structure



Example SW plus HW Decomposition

