

# Systems Engineering Fundamentals Partitioning and Interfaces

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## Abstract

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

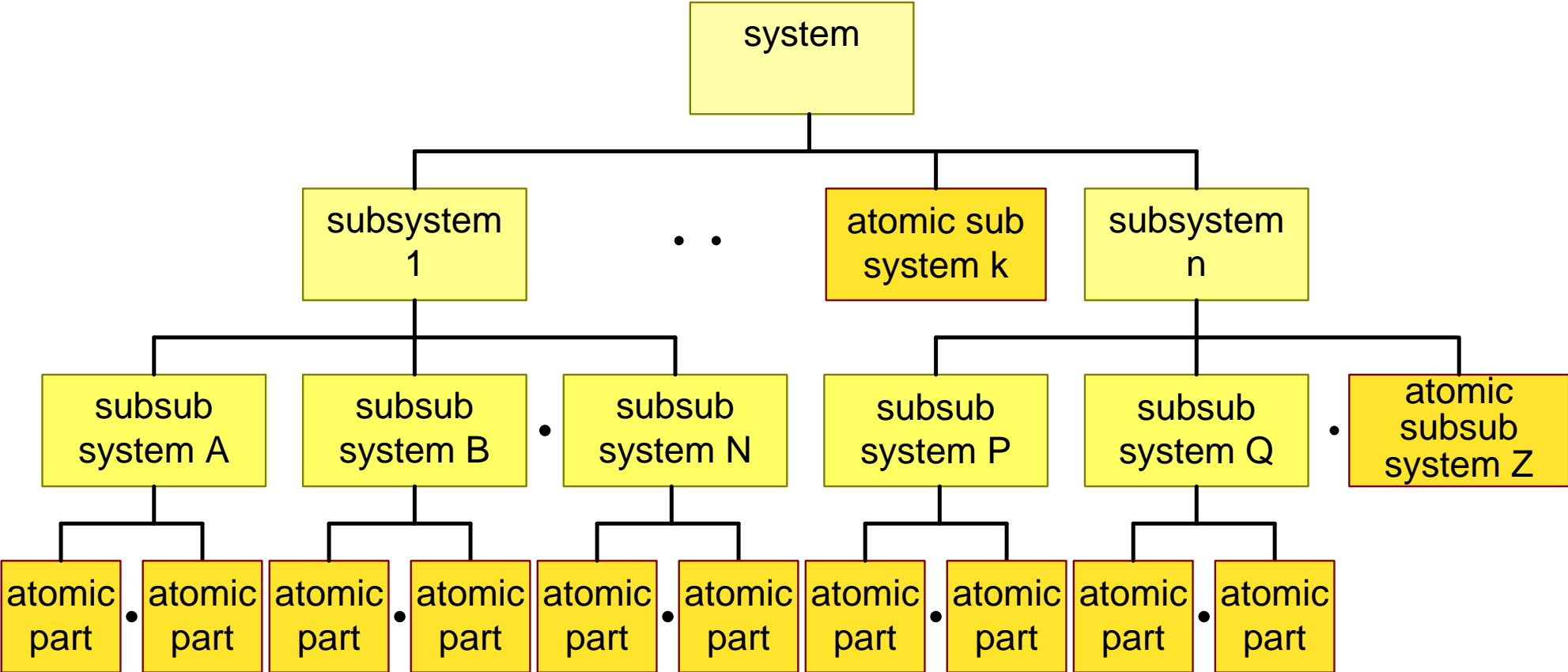
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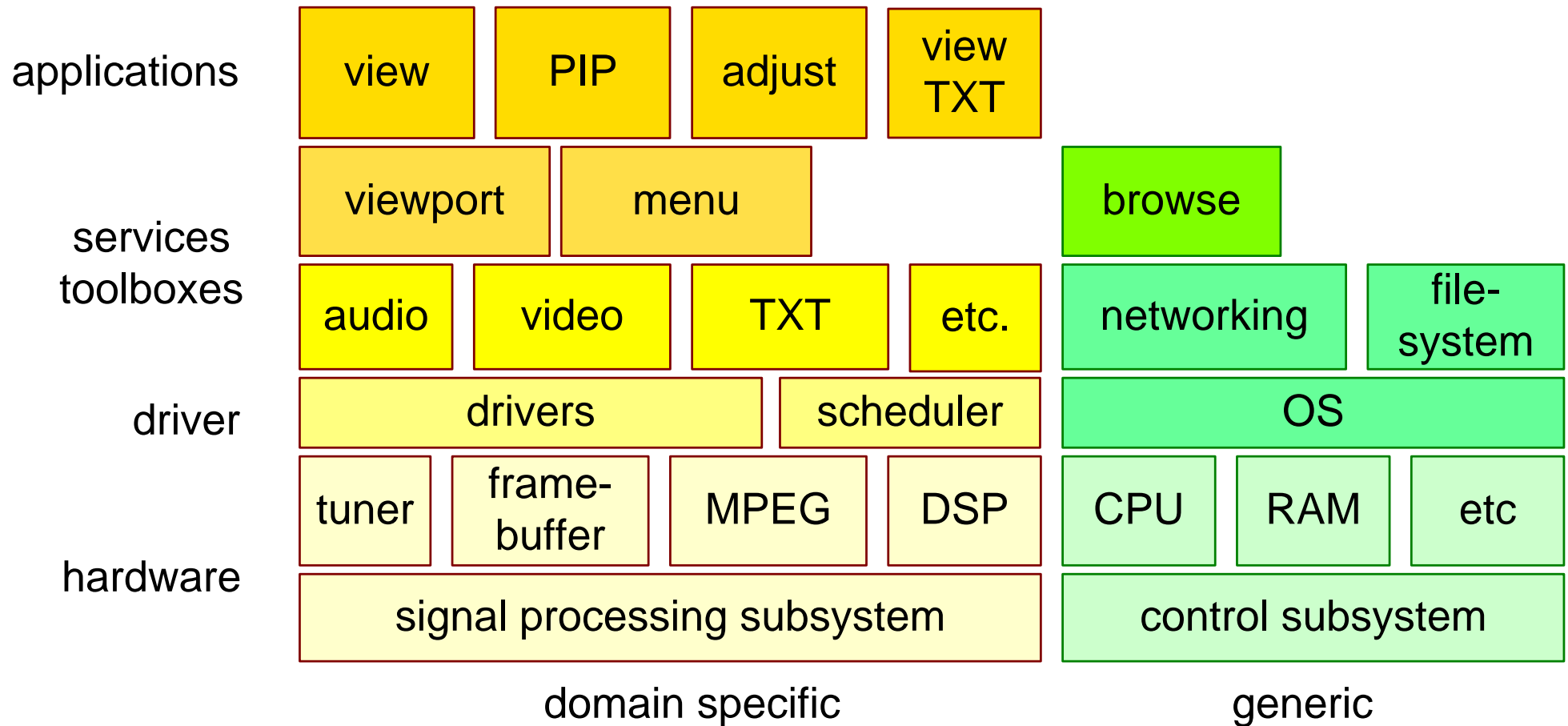
August 16, 2025  
status: planned  
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# Partitioning is Applied Recursively



# Software plus Hardware Decomposition



the part is cohesive

functionality and technology belongs together

the coupling with other parts is minimal

minimize interfaces

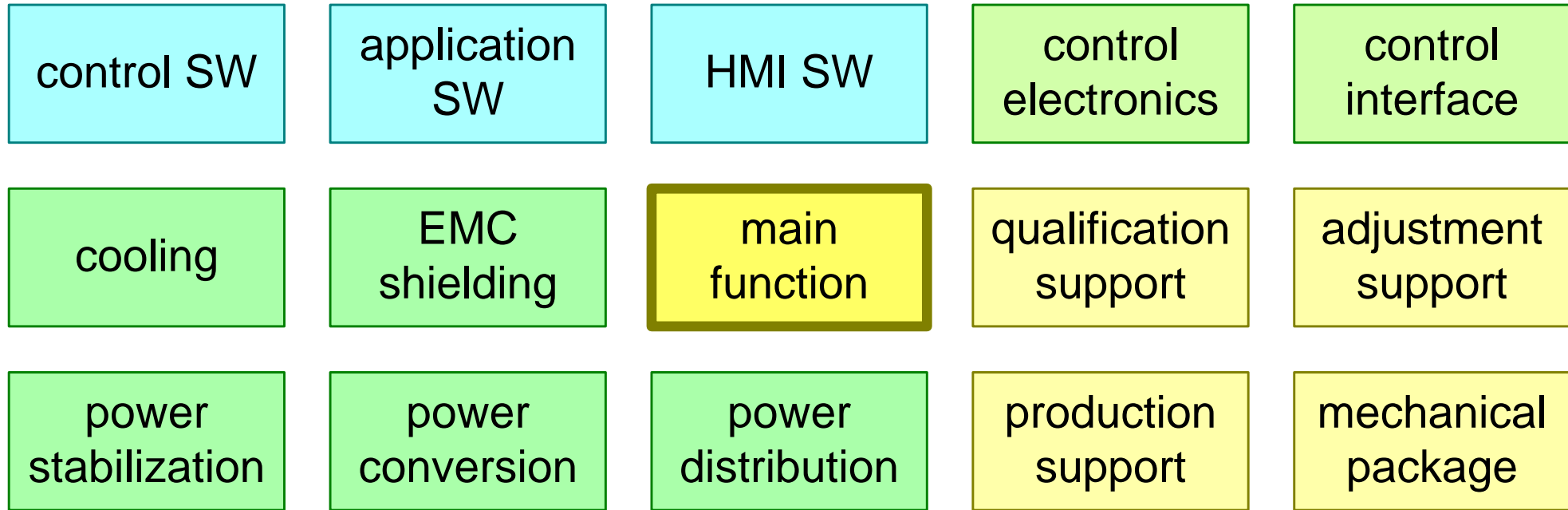
the part is selfsustained for production and qualification

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?

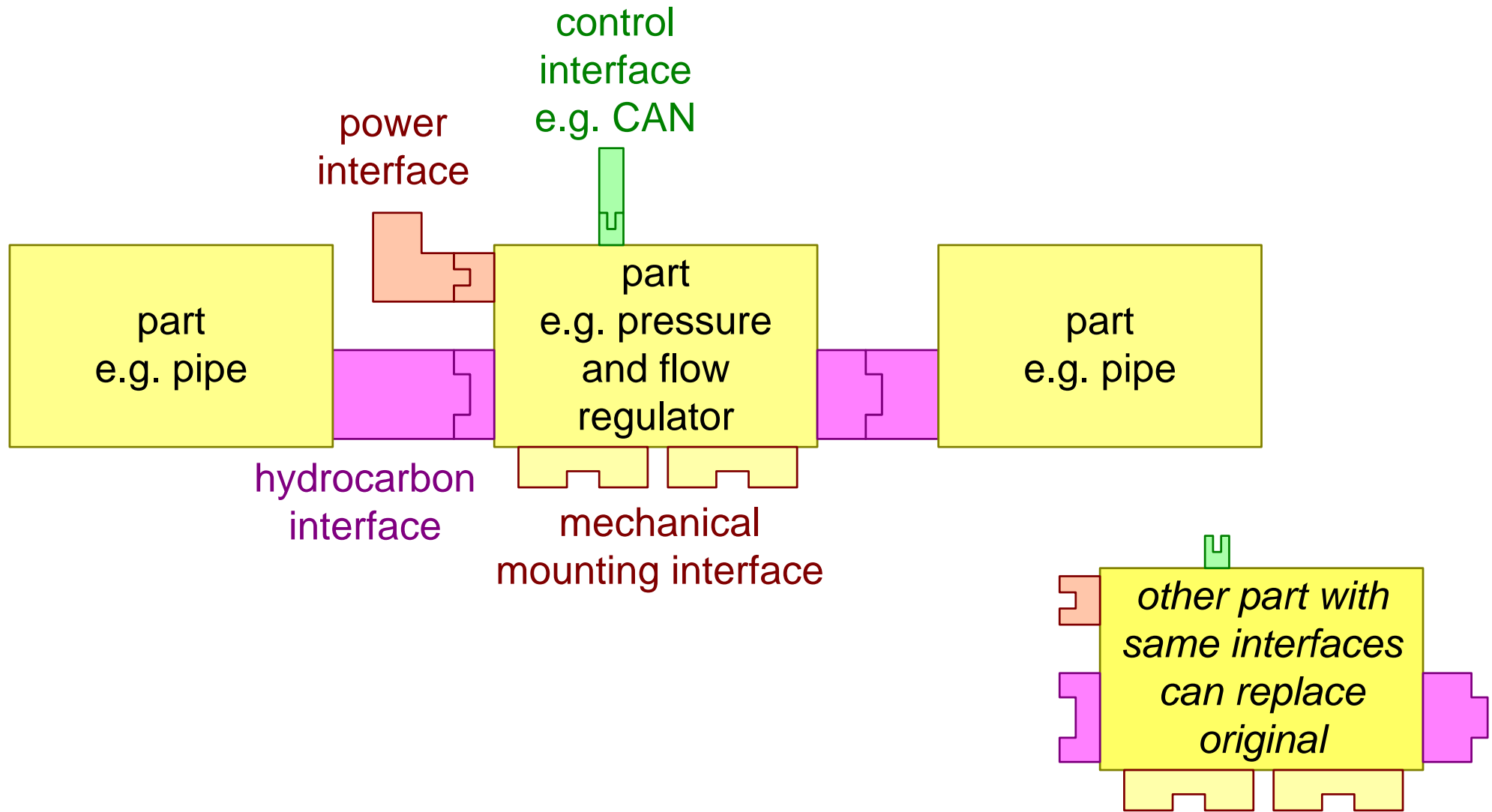
trade-off:

cost/speed/space  
optimization



logistics/lifecycle/production  
flexibility  
clarity

# Decoupling via Interfaces



# The Ideal Modularity

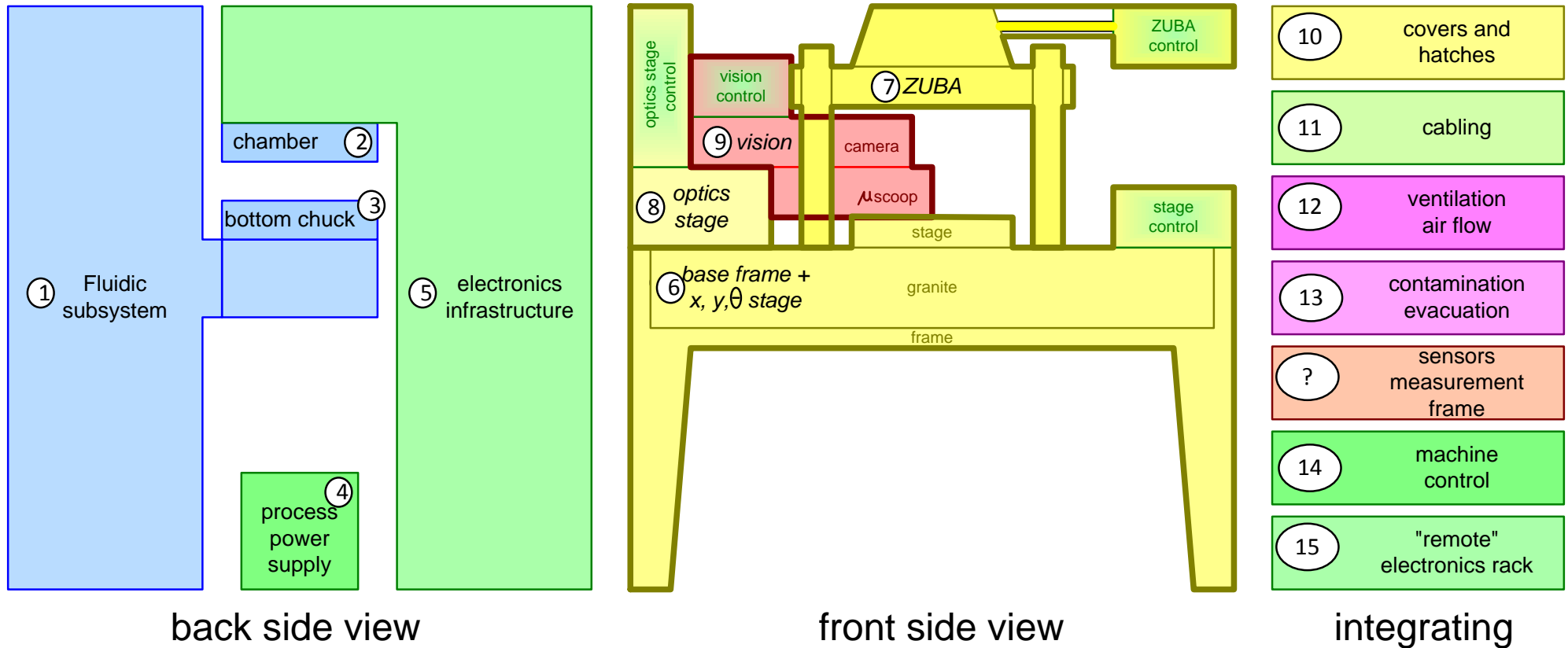
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System is composed

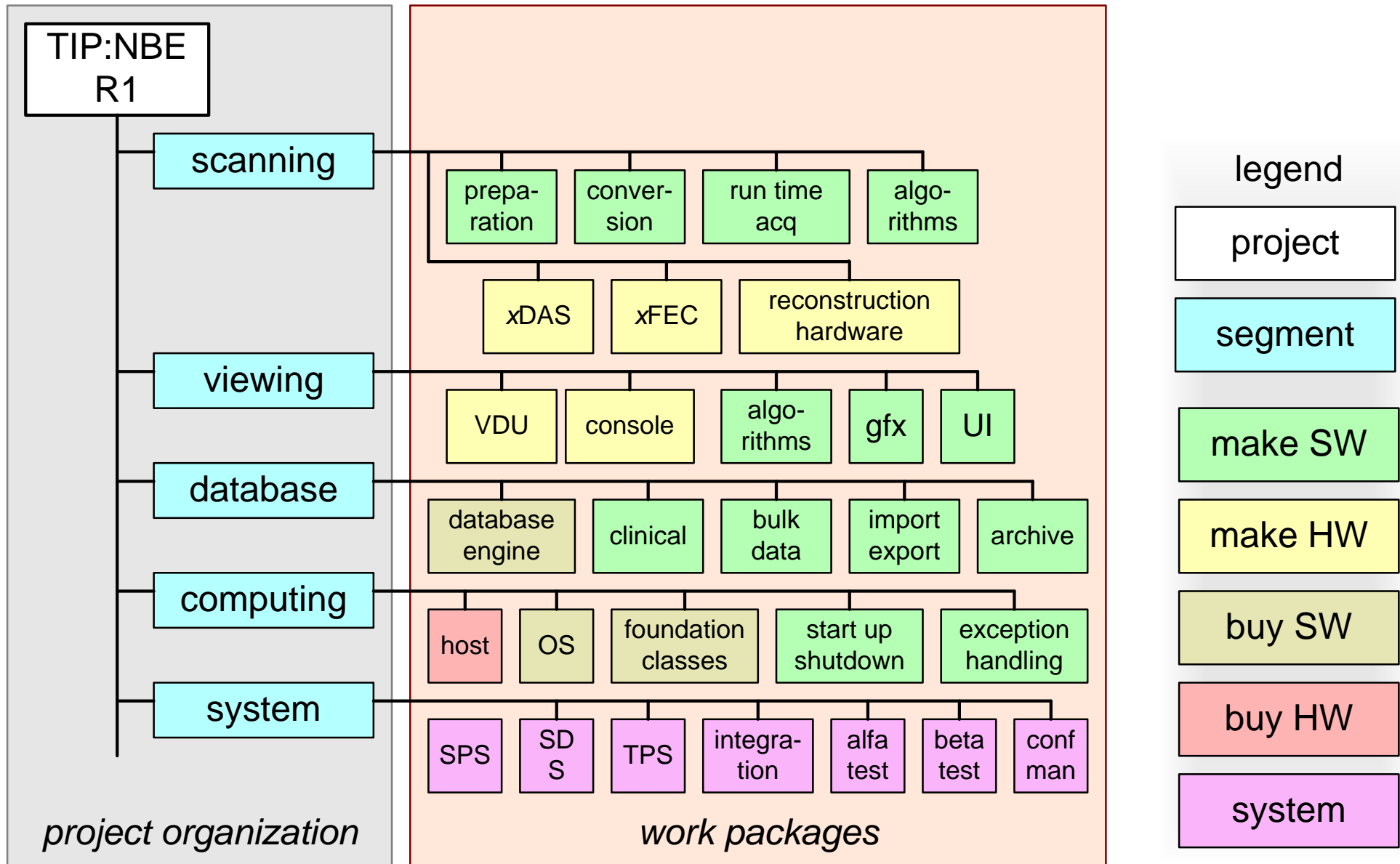
by using standard interfaces

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

# Example Physical Decomposition and Visualization



# Example Work Breakdown Structure



# Example SW plus HW Decomposition

