



TECHNISCHE UNIVERSITÄT
CHEMNITZ

Operating Systems Group



In Microservices We Trust?

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Microservices are:

- Easy to build
- Scalable
- Easy to maintain
- Self repairing
- Fault tolerant
- And many more

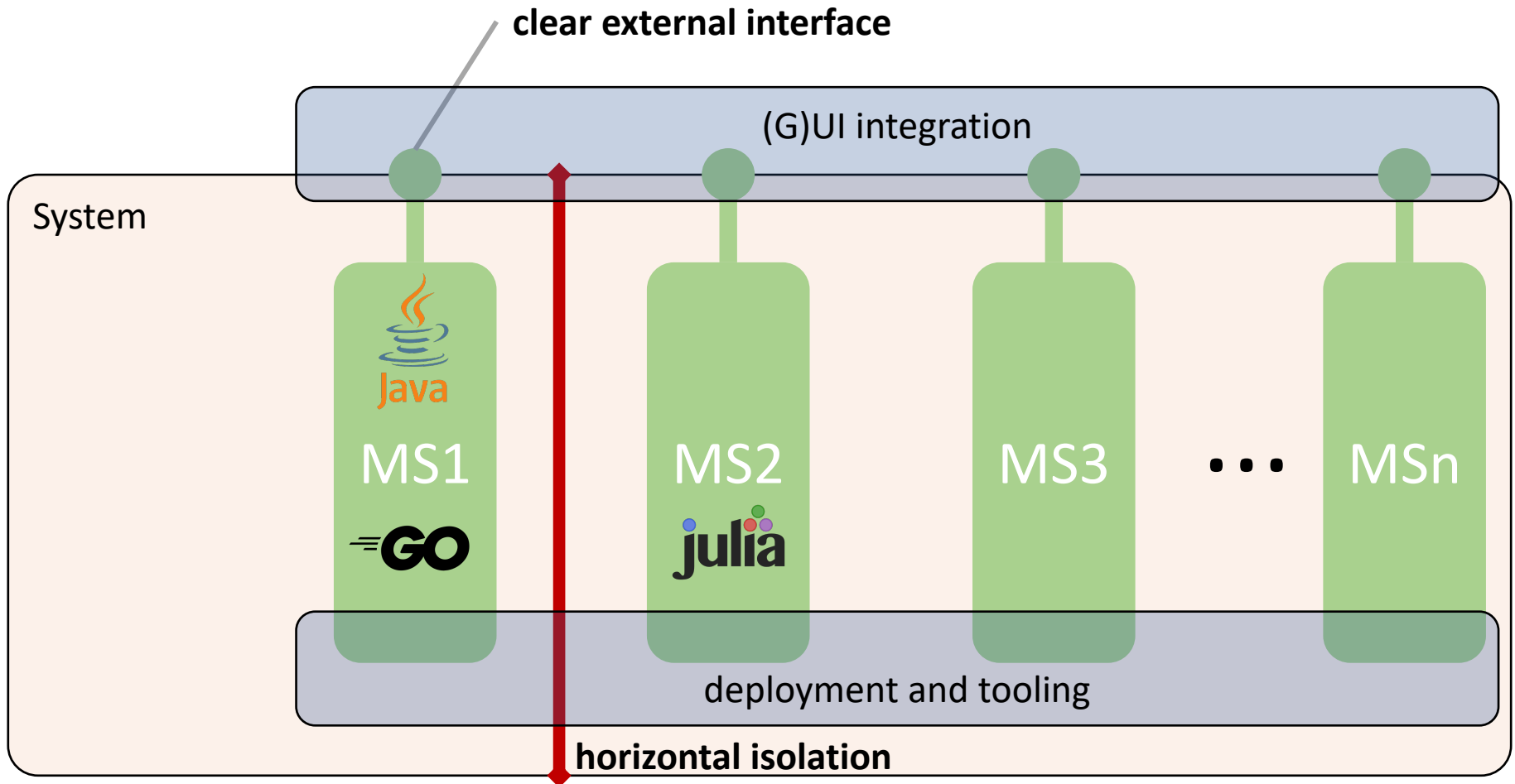
At least in Marketing

➤ Def. ???

- “microservices are small”
- “SOA done right”
- “a technology” (compiler deployment, etc.)
- “a DevOps based process”
- “evangelistic consulting”
- ...

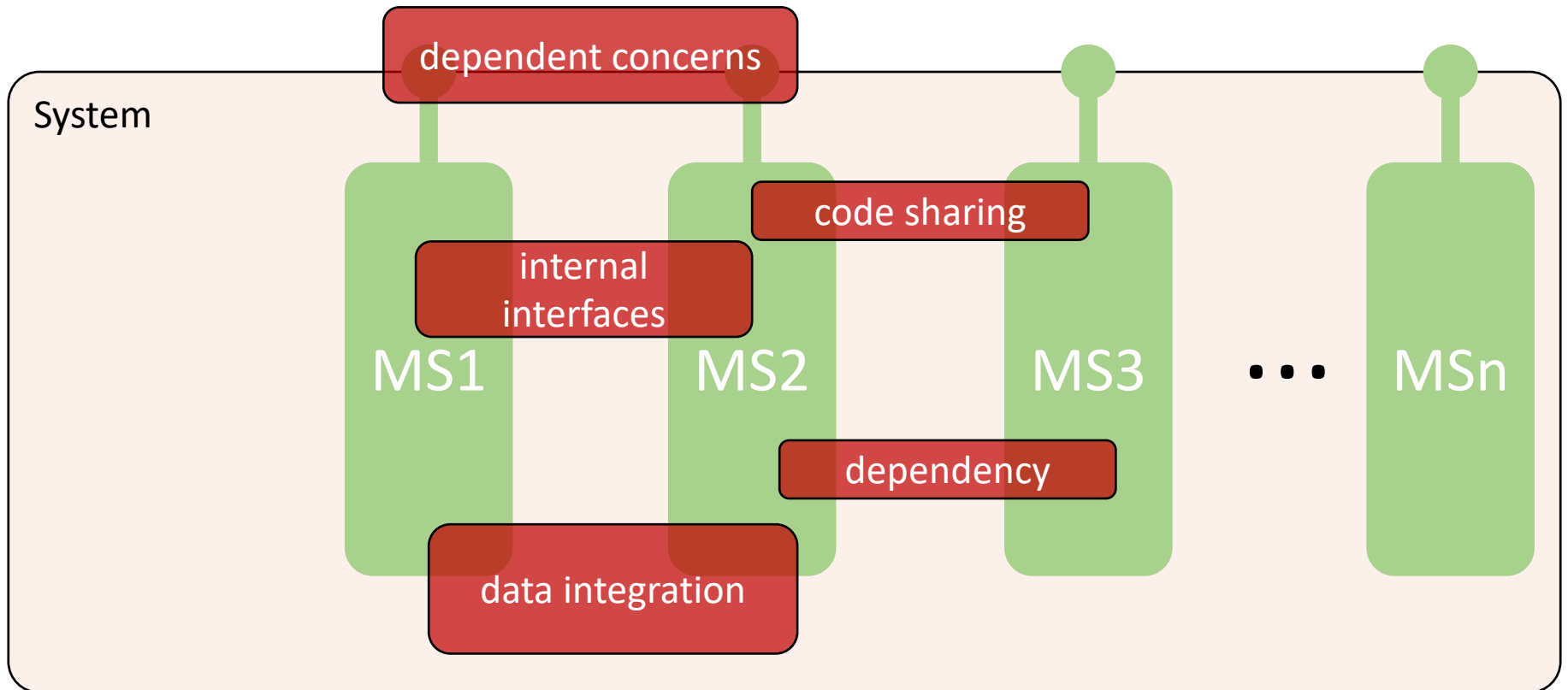


Microservice Style (MS) Definition





Forbidden for Microservices





Is a single MS resilient?

Pros

- Smaller, less complex than the system
- Part of a DevOps concept

Cons

- An arbitrary piece of software
- Can be rewritten at any time



➤ **As good as any piece of software**

➤ **Reduced complexity (as like modules, OO, agents, ...)**

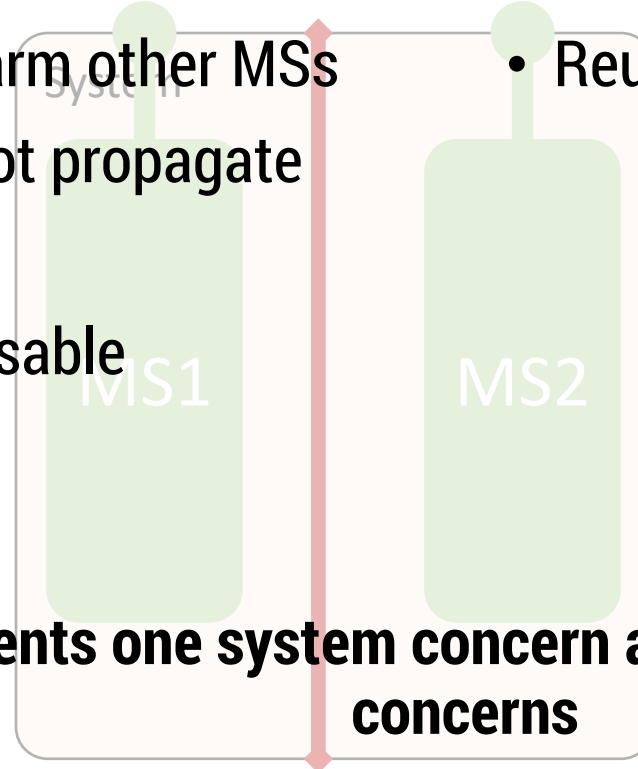


Is a MS system resilient?

Pros

- A MS can not harm other MSs
- Problems can not propagate
- System is still usable

horizontal isolation



Cons

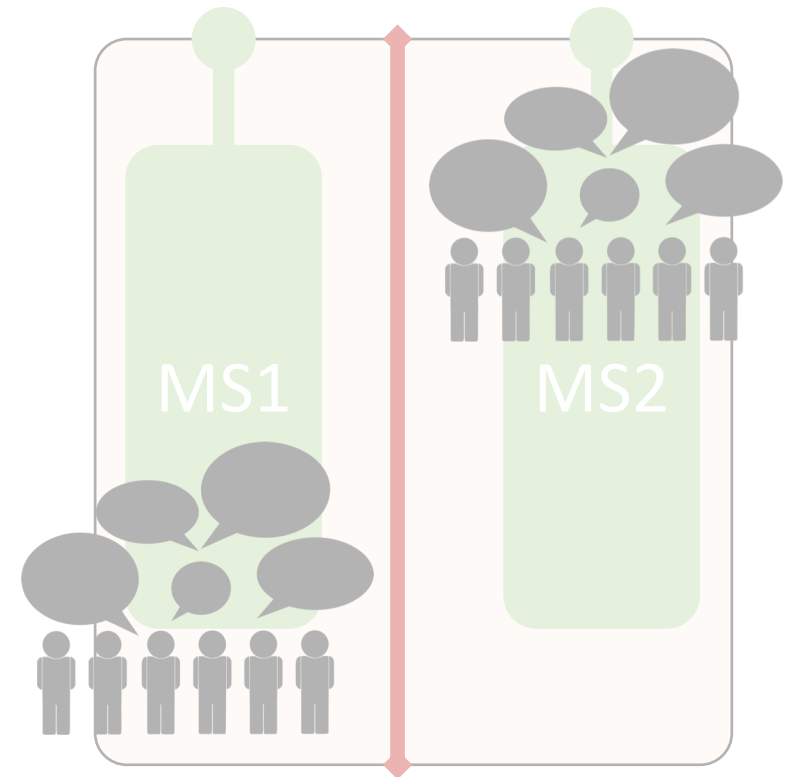
- Reuse forbidden

➤ **One MS represents one system concern and is independent of other concerns**



DevOps and MS Systems

- MSs systems often introduce DevOps
- DevOps is still debated
- At least better than no management
- Independent management (MSs) introduces (new) problems





Open Challenges (MS)

- Code sharing
 - Operation of deployment and tooling infrastructure
 - Inter-team knowledge transfer
 - Avoidance of dependencies
 - ...
-
- **How to find good, separated concerns for MSs?**



Lessons Learned

- Microservices provide advantages
- A strict concept has to be used

- Size/complexity reduction is a well known concept
- Separation is a well known concept

- MS is not for free



In Microservices We Trust?



- Separation of concerns
- Dependency management
- Isolation
- Complexity reduction
- DevOps
- ...

