Monolith to Microservices:

Hexagonal Modular Pattern for Agile Microservices Evolution

Taras Shablii

Advisor: Sergiy Tytenko

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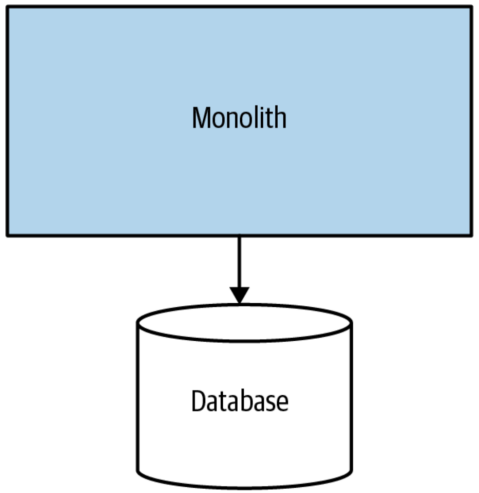
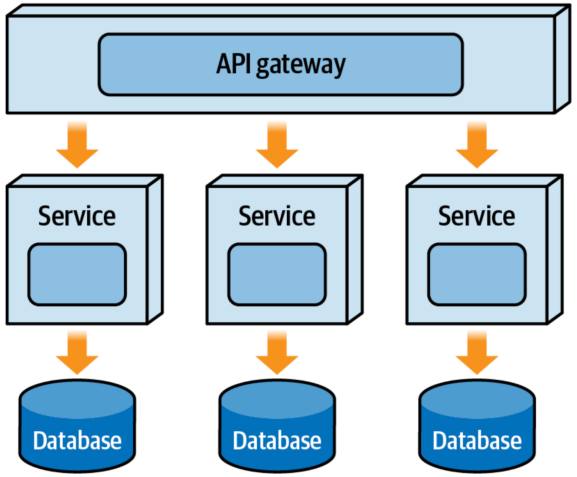
Contents

Monolith vs. Microservices





Pros:
- Simplicity
- Code/data reuse
- Simple deployment
- Performance

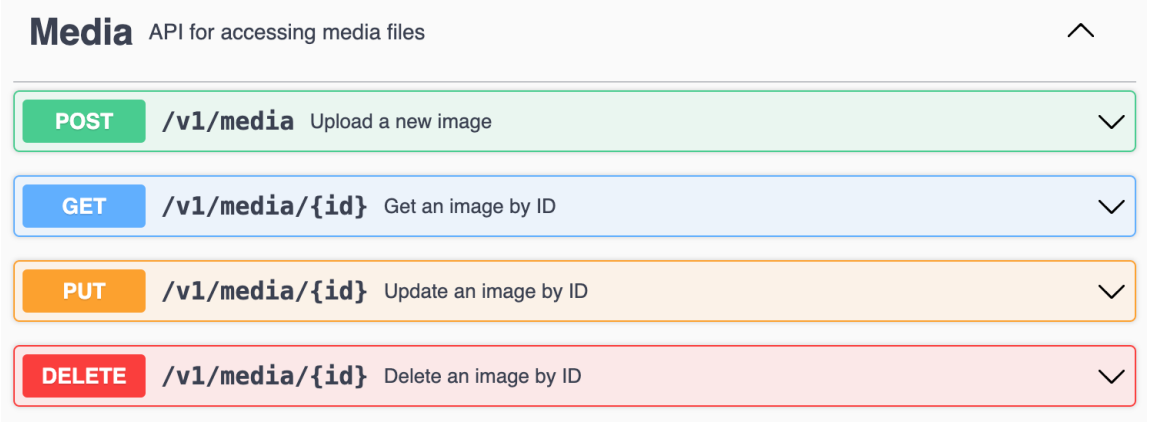
Cons:
- Scalability
- Tight coupling
- Degrading maintainability

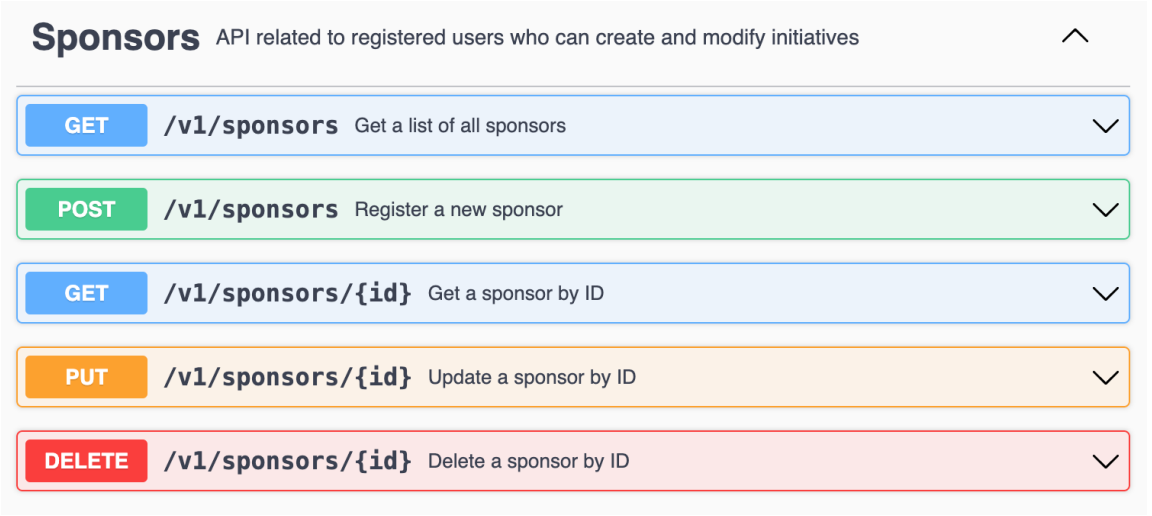
Pros:
- Scalability
- Resilience
- Technology diversity
- Maintainability

Cons:
- Cost
- Complexity
- Performance

Opora API

API for connecting donors with humanitarian initiatives





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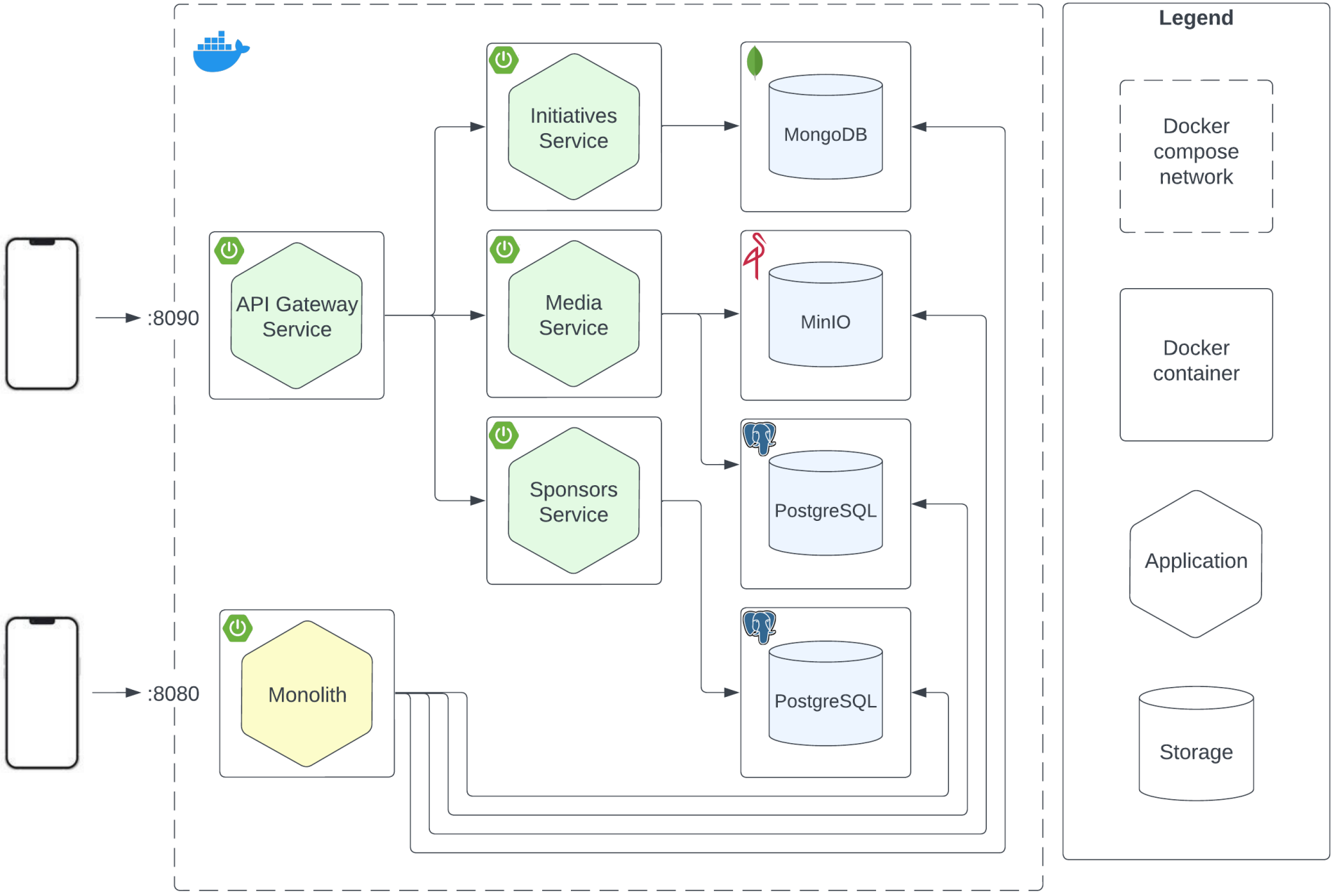
Deployment Diagram

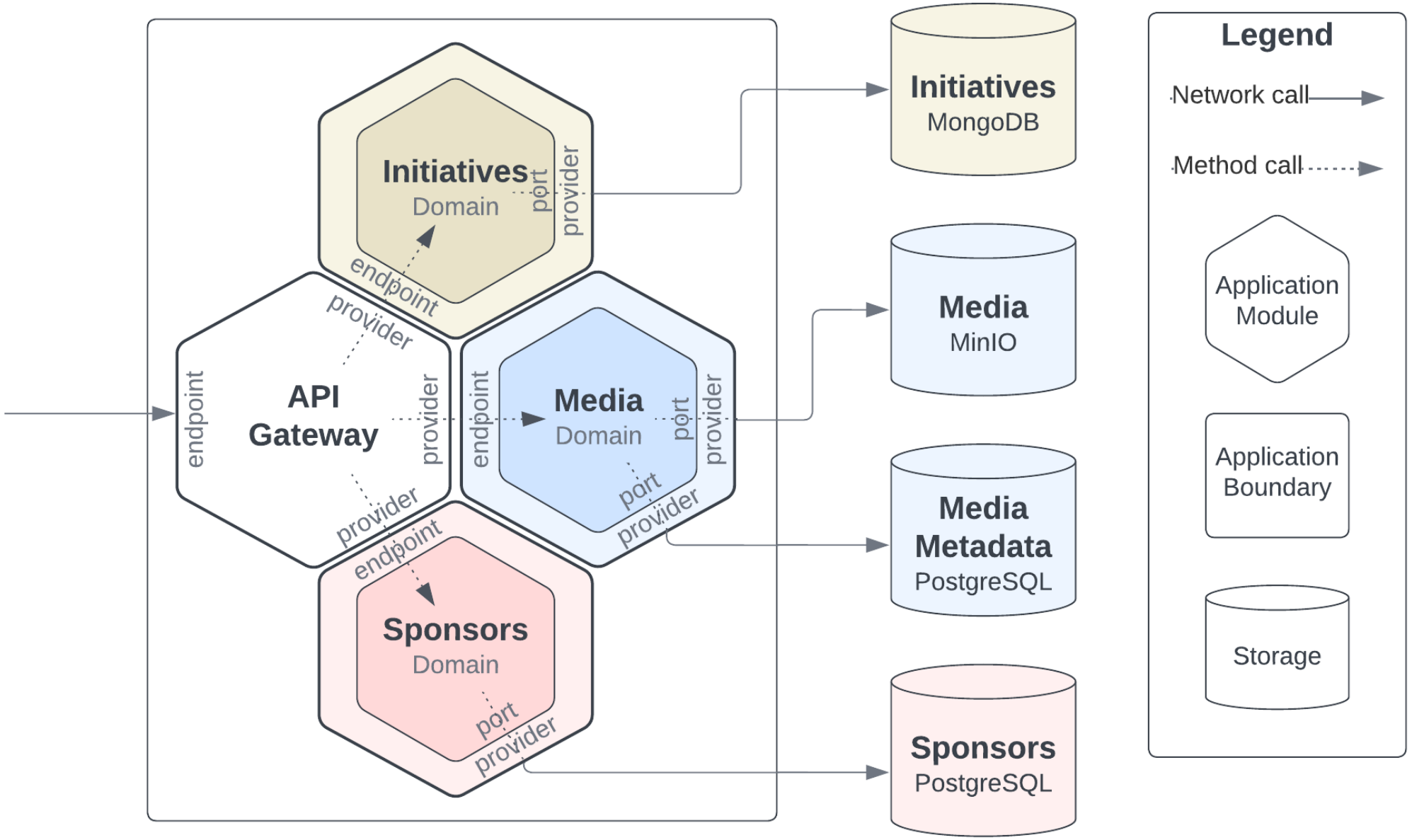


Problem Statement

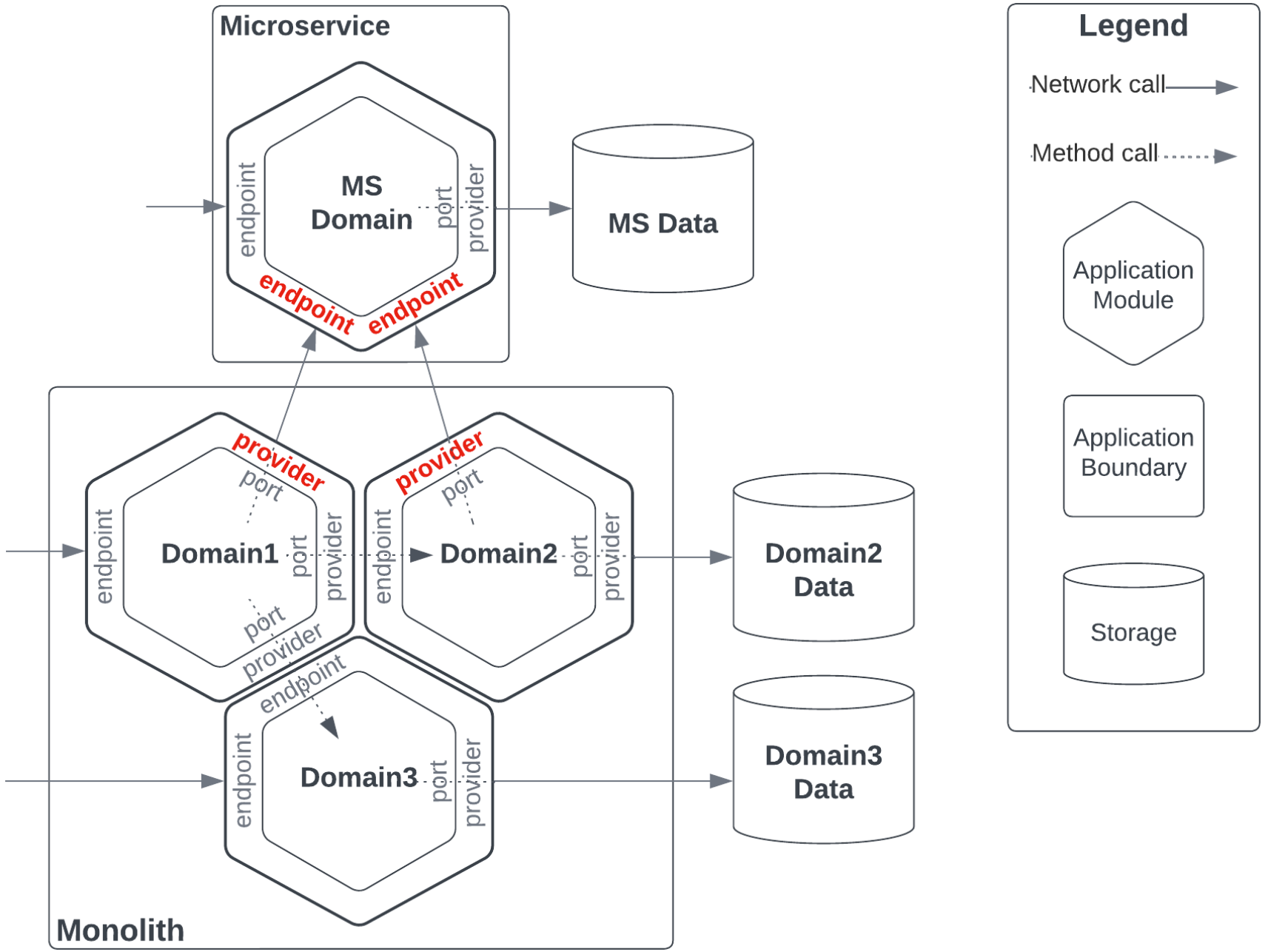
Startup/Greenfield Project	Monolith	Microservices
Fast time to market	✓	✗
Tight budget	✓	✗
Infrastructure simplicity	✓	✗
Simple organization structure	✓	✗
Ability to scale fast	✗	✓

Shablii, T., & Tytenko, S. (2023). MODULAR MONOLITH AS A MICROSERVICES PRECURSOR. *Modern engineering and innovative technologies*, (29-01), 25-32.
DOI: https://doi.org/10.30890/2567-5273.2023-29-01-038

Hexagonal Modular Pattern



Hexagonal Modular Pattern



Implementation and Migration Results

Benefits:
- Agile transition to microservices
- Decreased long-term maintenance cost
- Seamless integration

Considerations:
- Domain modeling
- Governance effort
- Transaction management
- Model duplication

Applicability in Different Contexts:
- Startups/greenfield projects
- Brownfield (as intermediary step)

Thank you!

Your questions are welcome

Paper

GitHub

Taras Shablii

Master of Software Engineering taras.shablii@auk.edu.com

Senior Software Engineer taras_shablii@epam.com

American University Kyiv
Powered by Arizona State University

epam