

M&S as a Service – Die NATO-Perspektive

Workshop „Innovative Ansätze in der Modellbildung
und Simulation“

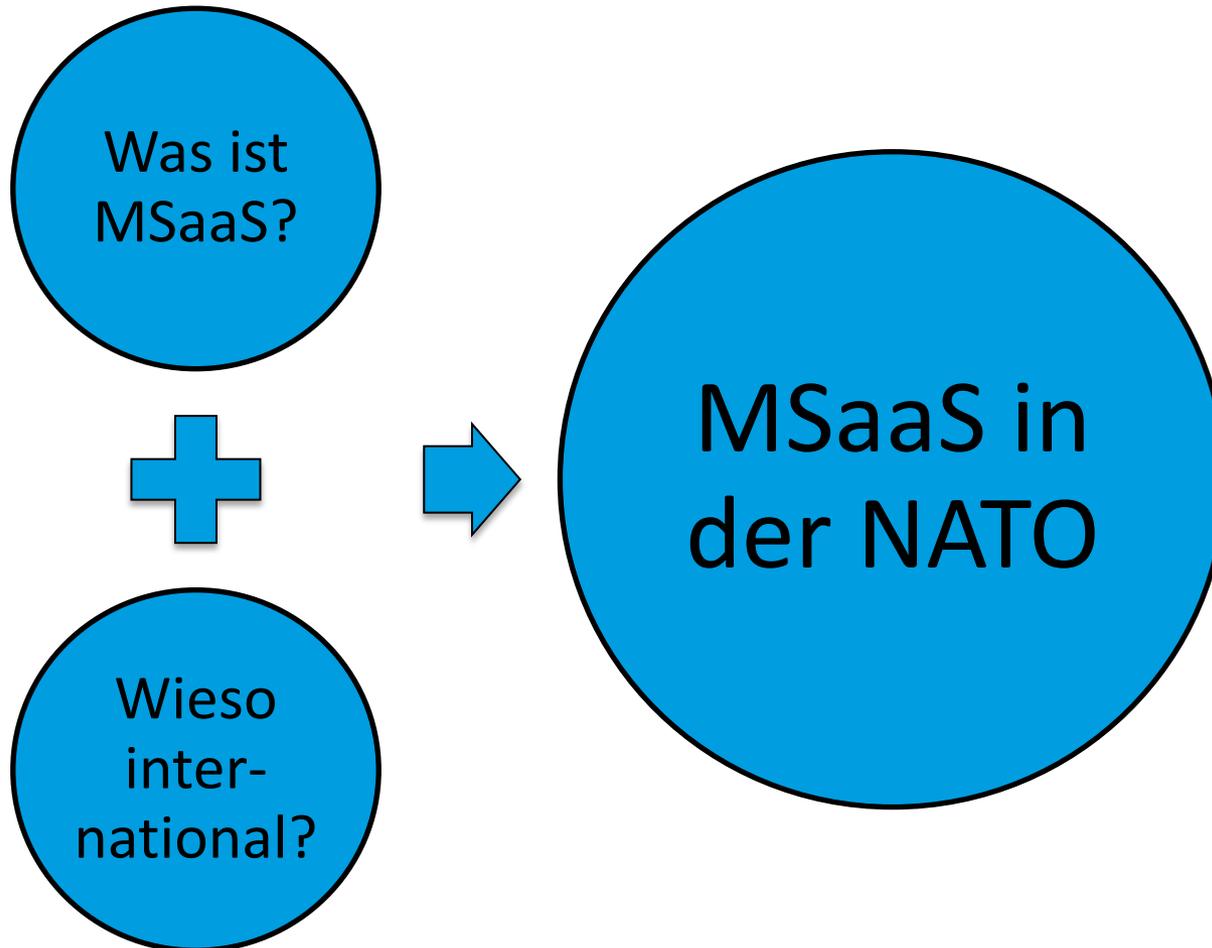


Dr. Robert Siegfried

Neubiberg, 26.01.2015

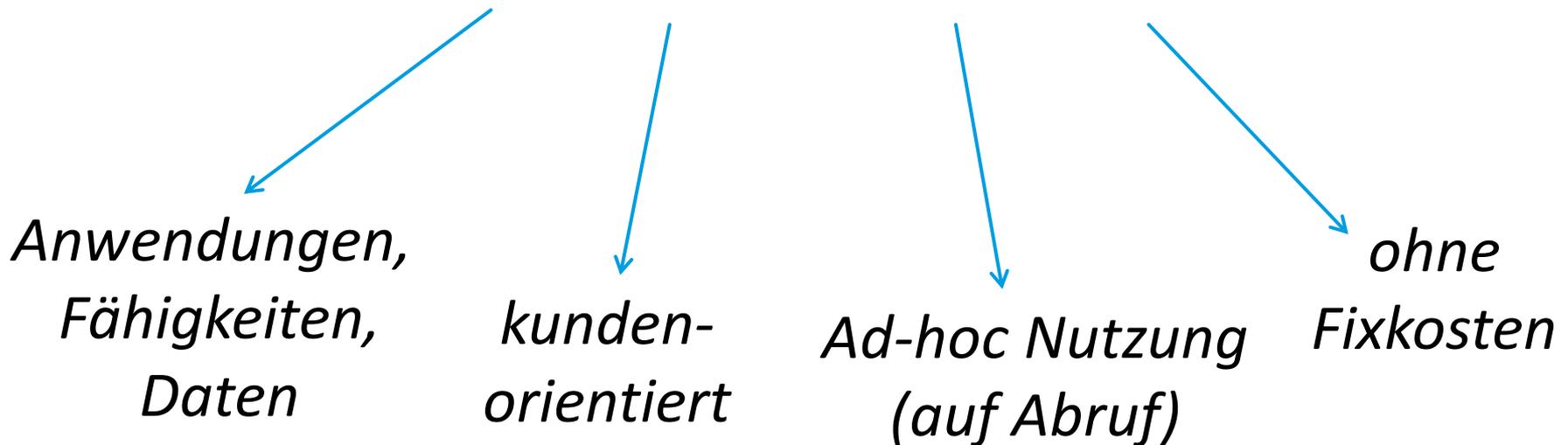
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Die nächsten 20 Minuten



Welche Assoziationen werden mit MSaaS verbunden?

M&S as a Service (MSaaS)



Definition

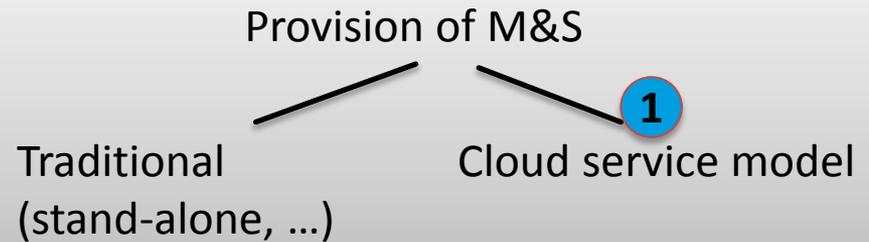
“M&S as a Service (MSaaS) is a means of delivering value to customers to enable or support modelling and simulation (M&S) user applications and capabilities as well as to provide associated data on demand without the ownership of specific costs and risks.”

[MSG-131 Final Report]

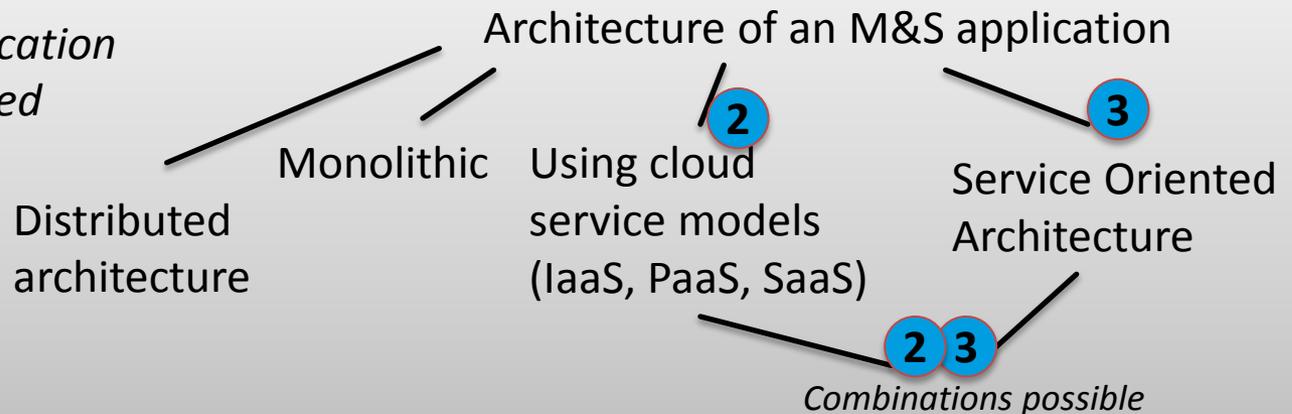


Viele unterschiedliche Perspektiven auf MSaaS

How a user accesses an M&S application

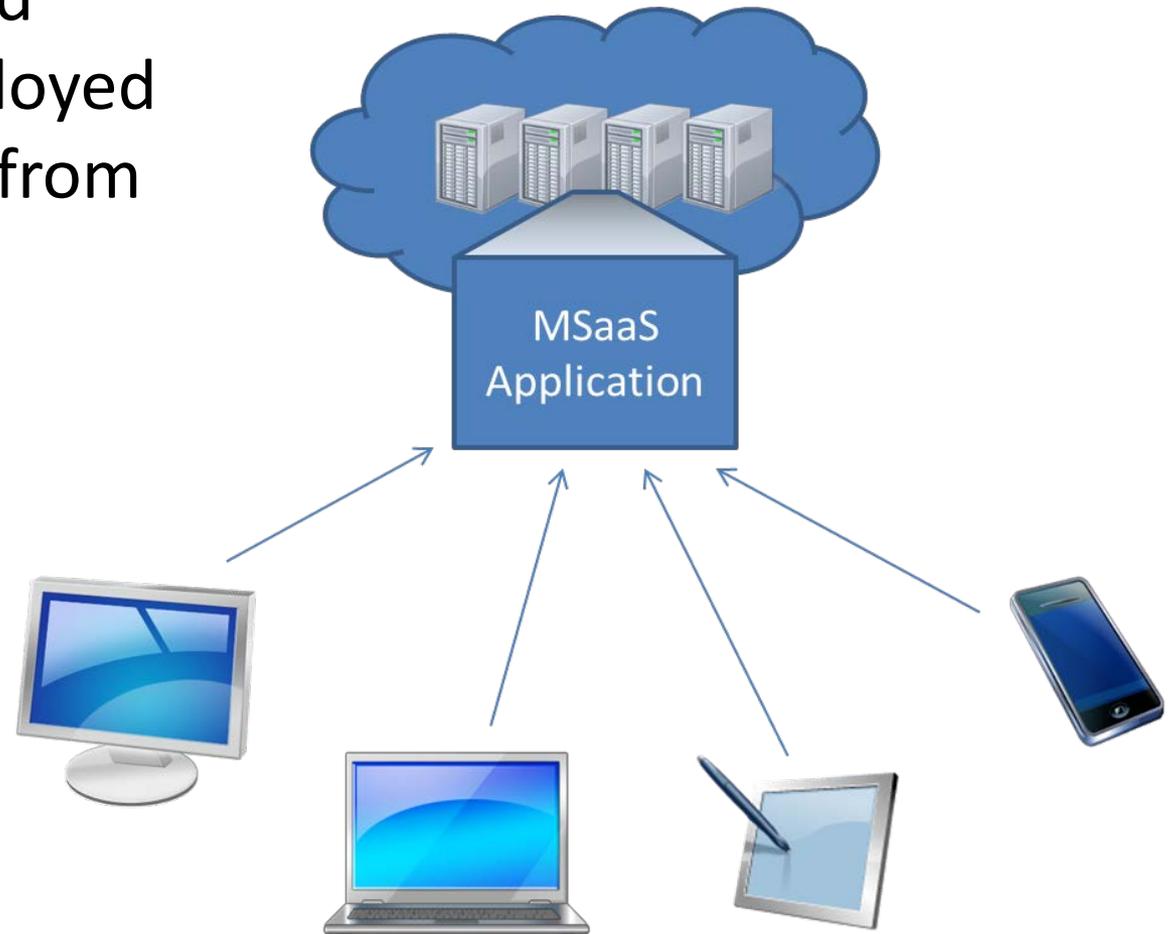


How an M&S application is internally designed



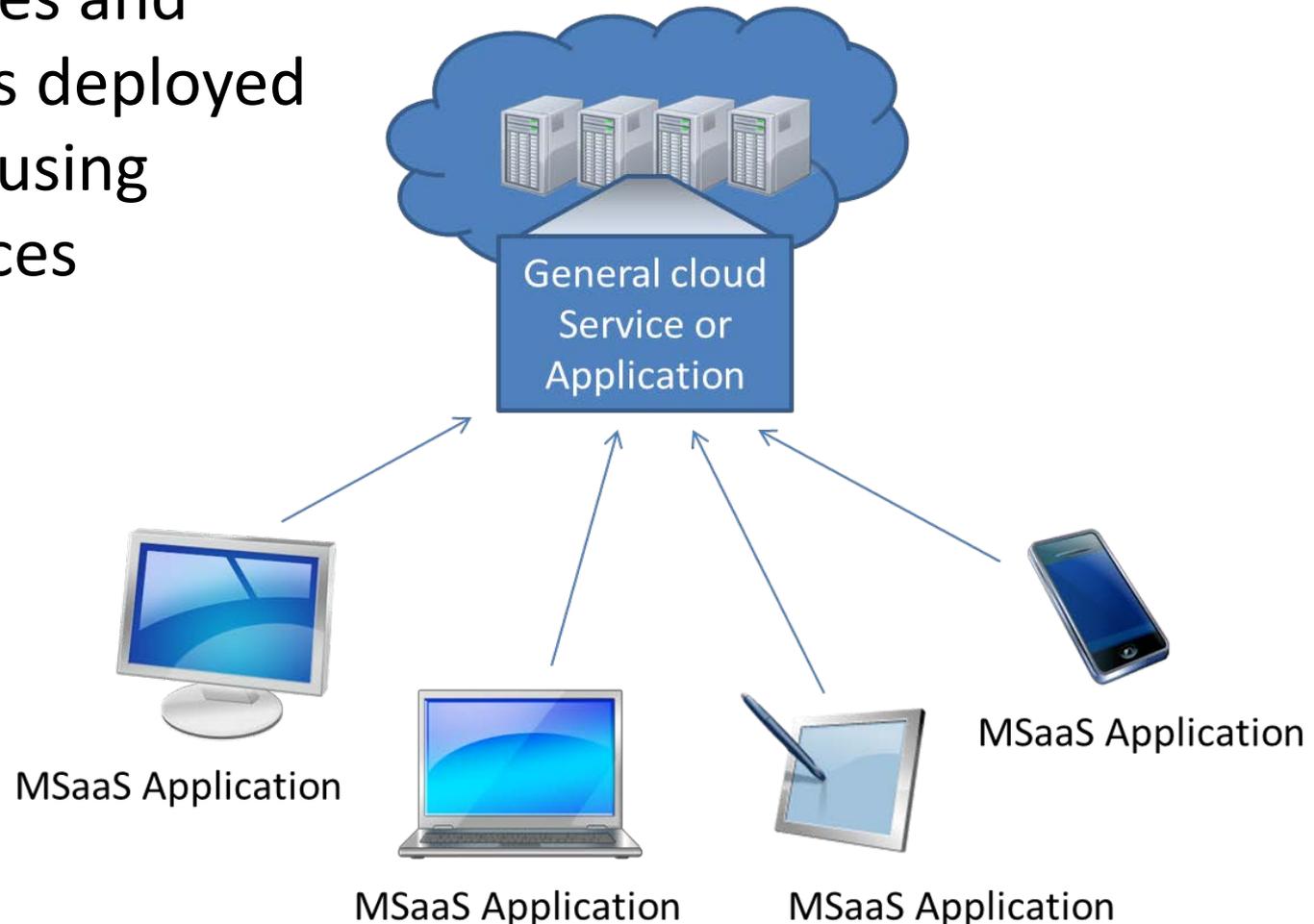
1 MSaaS as a cloud service model

- M&S services and applications deployed to and accessed from the cloud



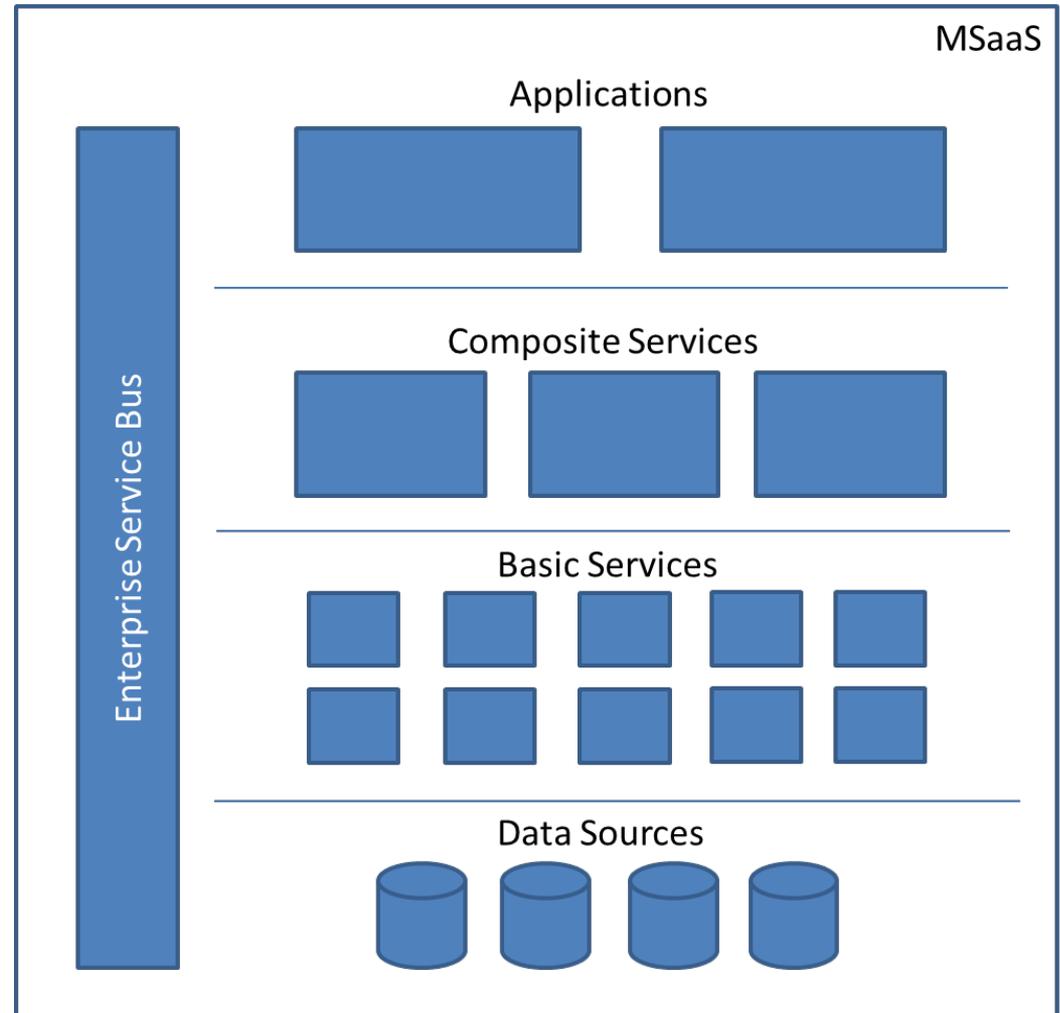
2 MSaaS using cloud service models

- M&S services and applications deployed locally and using cloud services



3 MSaaS as a Service Oriented Architecture

- M&S services and applications are decomposed into smaller services
- Services combined according to a SOA

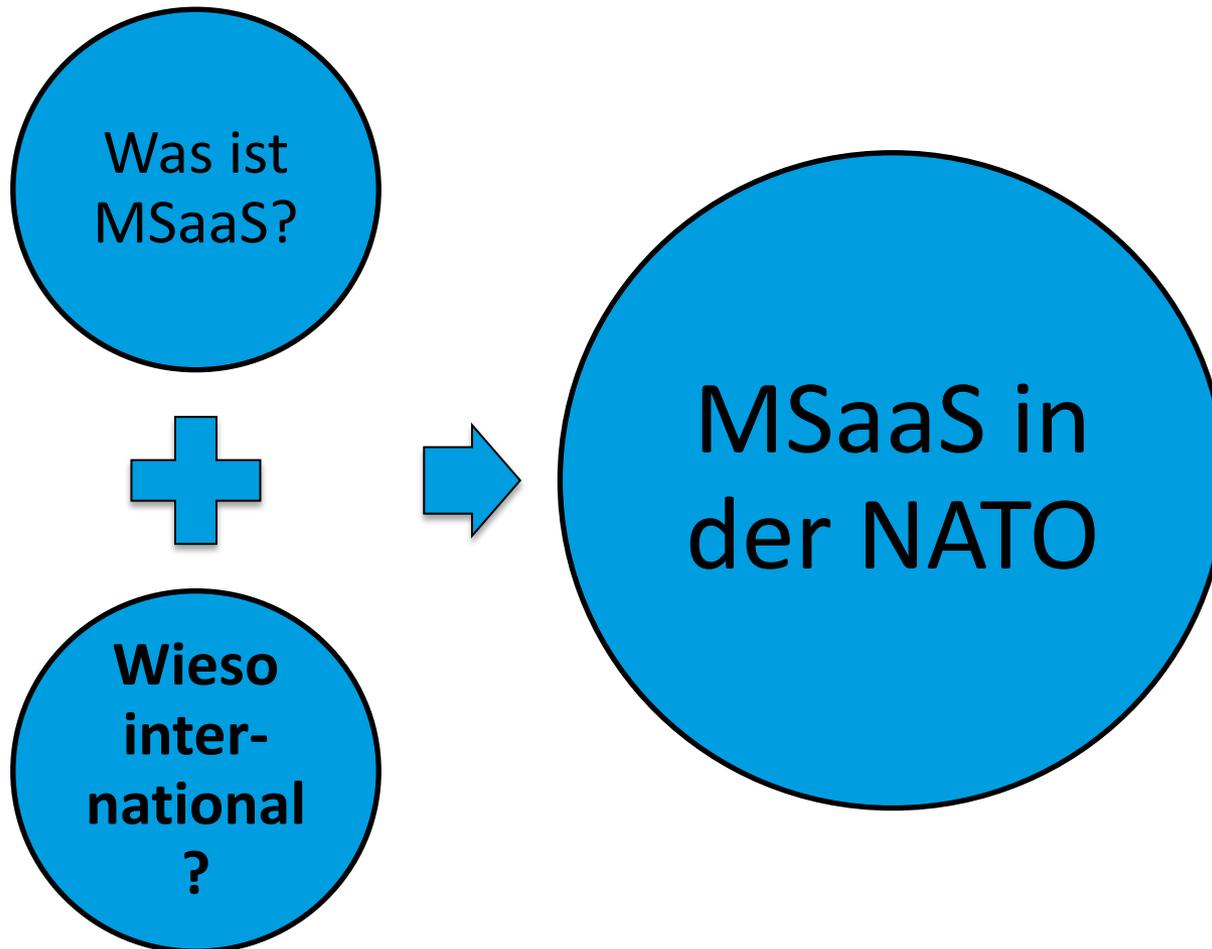


4 MSaaS as a Business Model

- Professional M&S-related services are provided by an organization/human on a regular basis (e.g., training services, V&V services, etc.)



MSaaS muss im internationalen Kontext betrachtet werden



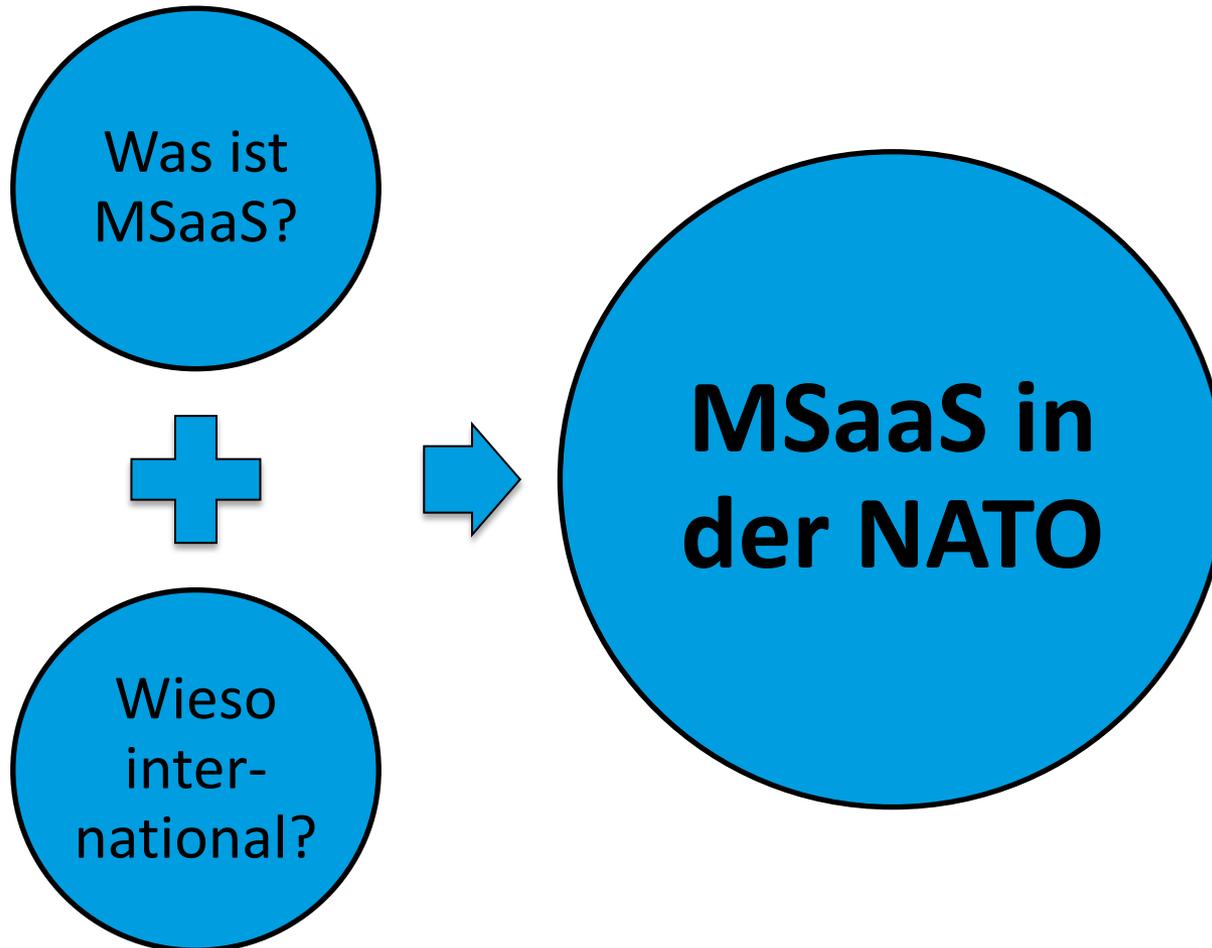
Internationale Kooperation ist längst Regel und nicht Ausnahme

- Nationale Alleingänge verlieren weiter an Bedeutung
 - Reduzierte Ressourcen (Personal, Geld, Systeme, ...)
 - Komplexe, nationenübergreifende Problemstellungen
 - Multi-nationale Einsätze, Übungen, Beschaffungen
- (Wehrtechnische) Industrie ist seit langem international aufgestellt
 - Vermarktung nationaler Sonderlösungen ist schwierig
 - Wettbewerbsfähigkeit erfordert Wiederverwendung von Lösungen
 - Internationale Kooperation fördert Akzeptanz von Lösungen

Internationale Kooperation



MSaaS in der NATO



F&T-Aktivitäten im NATO-Kontext

Exploratory Team (ET)

Very short activity,
may be established adhoc

 ET

Specialist Team (ST)

Usually 1-year activity,
only approval by CSO director required

 ST

MSG-131

August 2013 – August 2014

Research Task Group (RTG)

Usually 3-year activity, allows more
substantial work.
Produces final report/draft standard/
reference architecture/...

 RTG

MSG-136

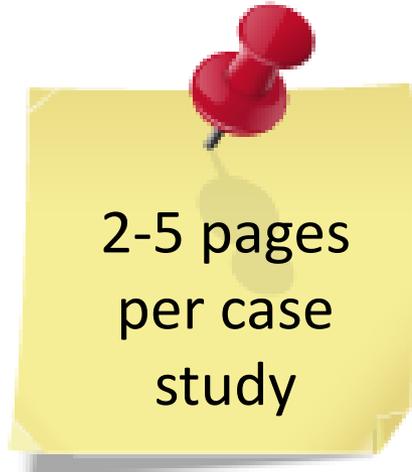
September 2014 – September 2017

Ergebnisse der MSG-131

- Delivered “Multi-National Technical Concept on MSaaS”
 - 108-page high quality report (publicly available!)
- Terminology and Definitions
 - Literature review: Service-oriented architectures, Cloud computing, etc.
 - Definition of “M&S as a Service”
 - Relation with NATO C3 Classification Taxonomy
- Collection of national experiences and lessons learned
 - Case studies for M&S as a Service to identify potential (common) services
 - Existing service-oriented M&S reference architectures

16 Fallstudien wurden identifiziert und analysiert

- Description of case study
- M&S business process supported by the case study
- Role of end user
- Security classification
- Type of services provided
- Properties of the service environment
- Capacity / Availability
- Authorization (Who/How)
- Type of delivery/quality of service
- Related costs
- Expected and observed benefits



2-5 pages
per case
study

Bestehende MSaaS Referenzarchitekturen wurden evaluiert



Vertiefung in MSG-136 (Laufzeit 2014-2017)

“Modelling and Simulation (M&S) as a Service (MSaaS)
– Rapid deployment of interoperable and credible
simulation environments”

- Focus on M&S domain services and necessary organizational aspects
 - M&S Services (e.g., domain services like Synthetic Environment Service (SES), Scenario Management Services, and others to be identified by MSG-136)
 - Organizational M&S Services Perspective

MSG-136 Vision Statement (NOV-1)



Vision Statement

To ensure that M&S products, data and processes are conveniently, simultaneously and spontaneously accessible to a large number of users for their individual purposes as often as possible.

MSG-136 als zentraler Hub vieler Aktivitäten rund um MSaaS

MSG-086 “Simulation Interoperability”
(DEU, Matthias Hahn, Robert Siegfried)

ET-34 “M&S as a Service”
(ACT, Angel San Jose Martin)

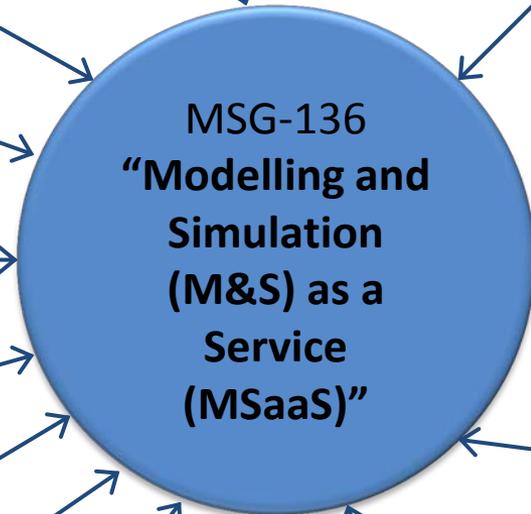
MSG-131 “M&S as a Service”
(USA/DEU, B. Miller/R. Siegfried)

MSG-071 “Missionland”
(NLD, Arjan Lemmers)

MSG-106 “SPHINX”
(FRA, Laurent Tard)

MSG-128 “MTDS”
(FRA, Jean-Pierre Faye)

ET-35 and MSG-134
“Compliance Testing”



Objectives
1.1, 1.2, and 2.1

Results from national projects



NATO STANAGs 4662, 4663, 4664
ISO/IEC 18023, 18024, 18025, 18026, 18041, 18042

Großes Interesse an MSaaS und MSG-136

- Beteiligte Nationen



AUS



CAN



DEU



DNK



ESP



FRA



GBR



ITA



NLD



NOR



POL



ROU



TUR



USA

- Beteiligte NATO Organisationen



ACT



JFTC



JWC



M&S CoE



NCIA

Ziele der MSG-136 und zu erarbeitende Ergebnisse

GOV

AMSP on MSaaS Governance

- Definition and Terminology
- Governance and Authority
- Implementation Roadmap

OPS

Concept of Operations (CONOPS)

- Cross-reference military and operational requirements with MSaaS Reference Architecture
- MSaaS Business Model
- Definition and description of Business Services

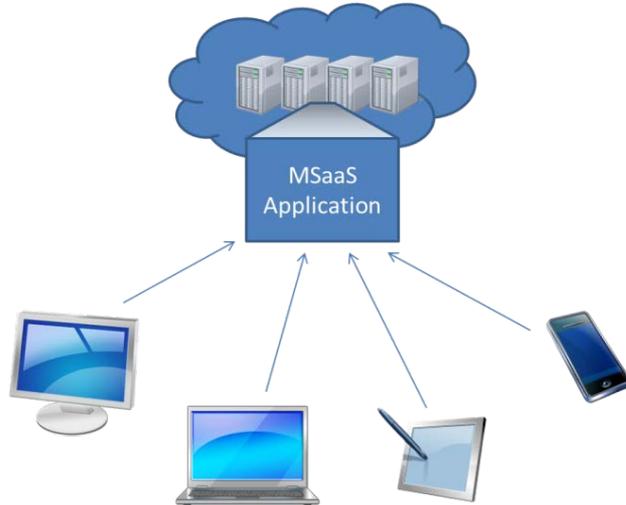
TEK

MSaaS Reference Architecture

- MSaaS integration into DSEEP and FEAT
- Generic Service Specifications
- Specialized Service Specifications

EVAL

Zusammenfassung



M&S as a Service verspricht vielfältige Verbesserungen

- Effizientere Bereitstellung von M&S
- Einfachere Zugänglichkeit
- Höhere Qualität

MSG-136 erarbeitet bis 2017 Grundlagen für ein zukünftiges „Federated M&S Ecosystem“

- Governance
- CONOPS
- MSaaS Reference Architecture





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