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IPS User Forum 2022 in Vienna, October 17th – 20th

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In-Service Product Support Analysis (PSA) for Virtual Platforms

PaaS (Platform as a Service)

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Company/Organization: **GMV Aerospace and Defence S.A.U.**

Abstract-No: **A#22**

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Main Objective: **In-Service Support Product Analysis (PSA)** for a Platform as a Service (PaaS)

Platform as a Service (PaaS) Architecture

Platform as a Service (PaaS) Challenges for LSA/PSA

PAS techniques for Platform as a Service (PaaS)

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Main Objective: **In-Service Support Product Analysis (PSA)** for a Platform as a Service (PaaS)

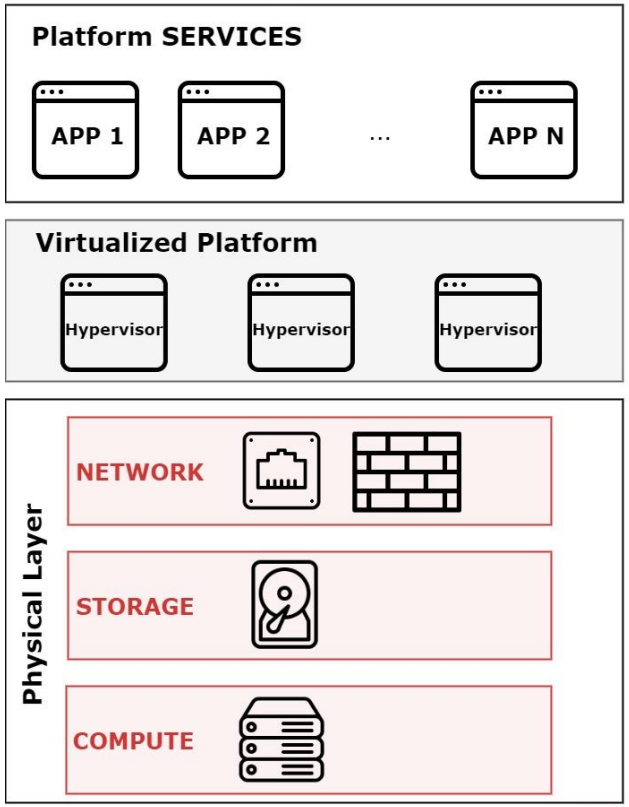
Platform as a Service (PaaS) Architecture

Platform as a Service (PaaS) Challenges for LSA/PSA

PAS techniques for Platform as a Service (PaaS)

Main Objective: In-Service Support Product Analysis (PSA) for a Platform as a Service (PaaS)

Propose a supportability solution using **traditional LSA techniques** improved with S3000L v2.0 for virtualized and containerized PaaS



Containerization enables to deploy multiple services using the same operating system on a single VM or server.

Virtualization enables to run multiple operating systems on the hardware.

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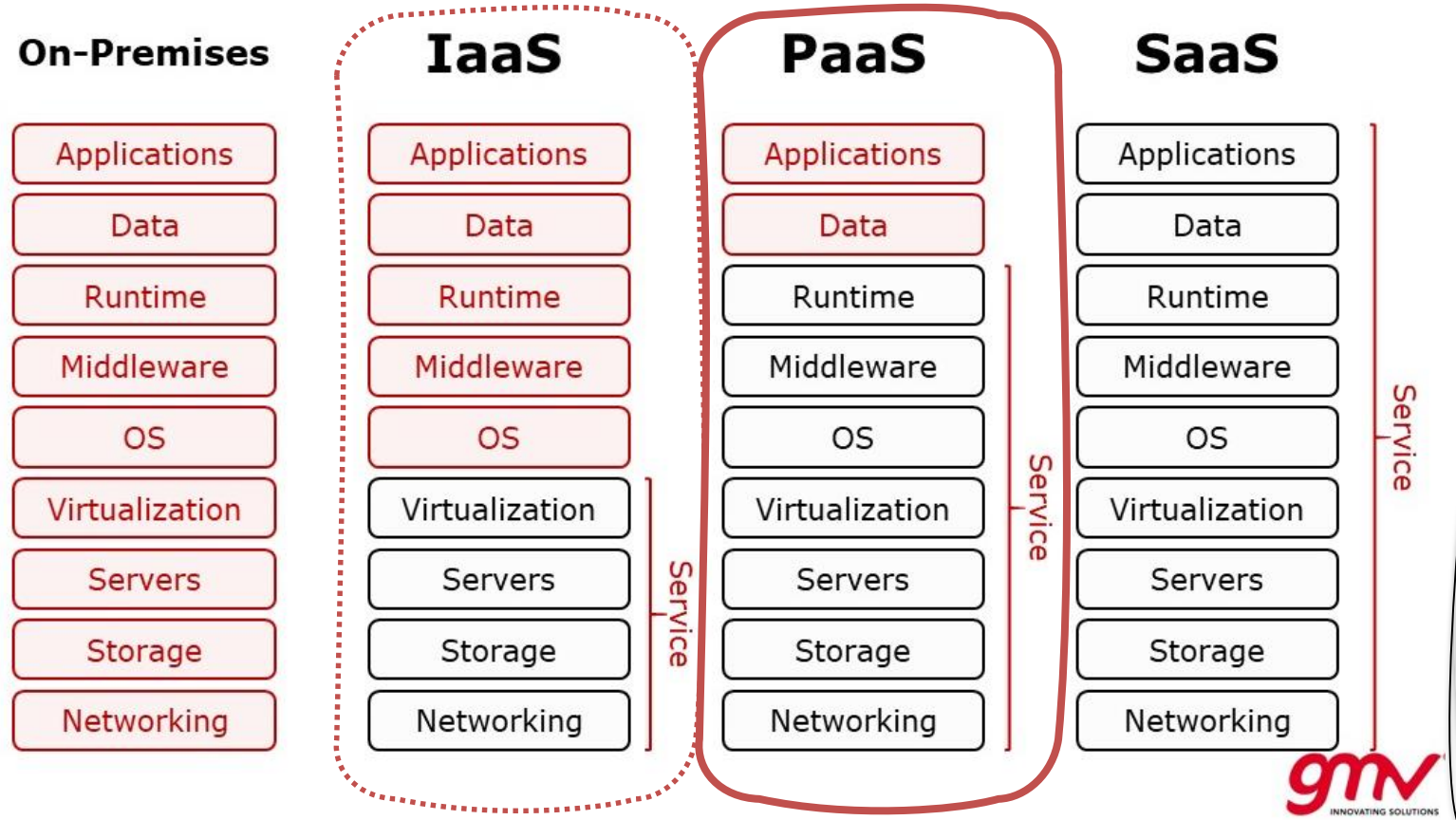
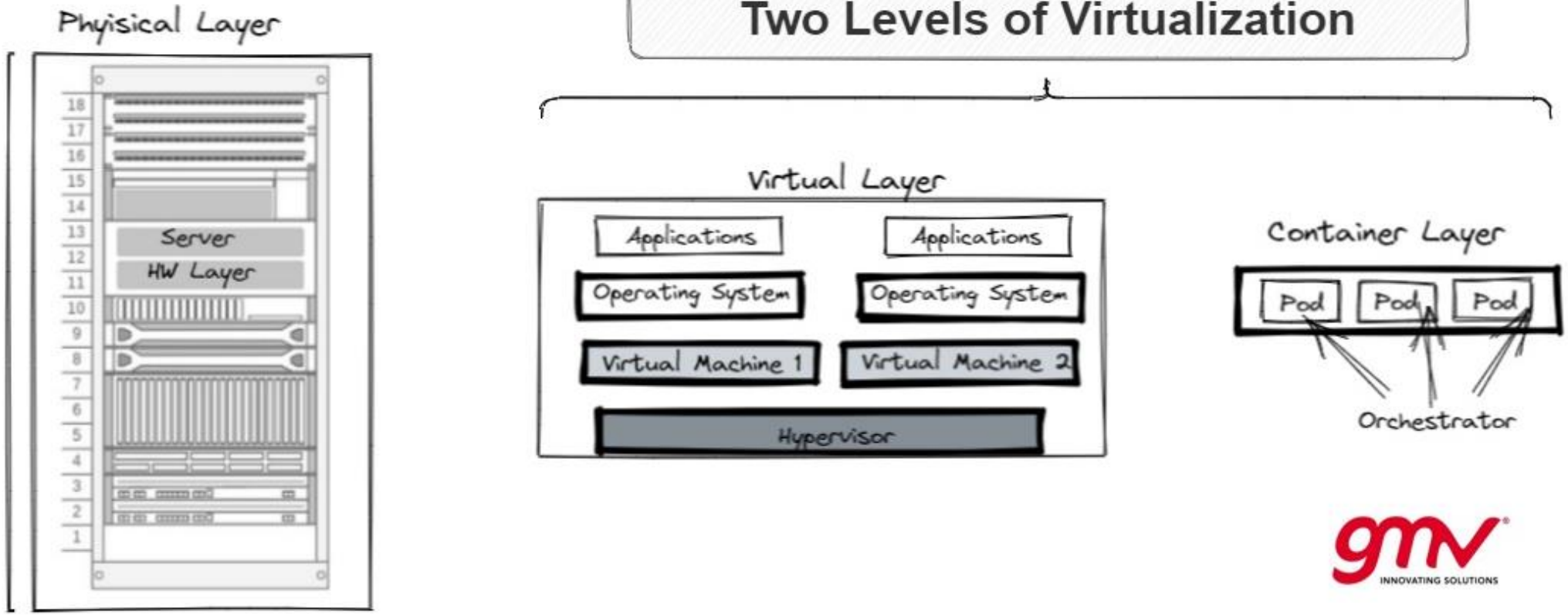
Platform as a Service (PaaS) Architecture I



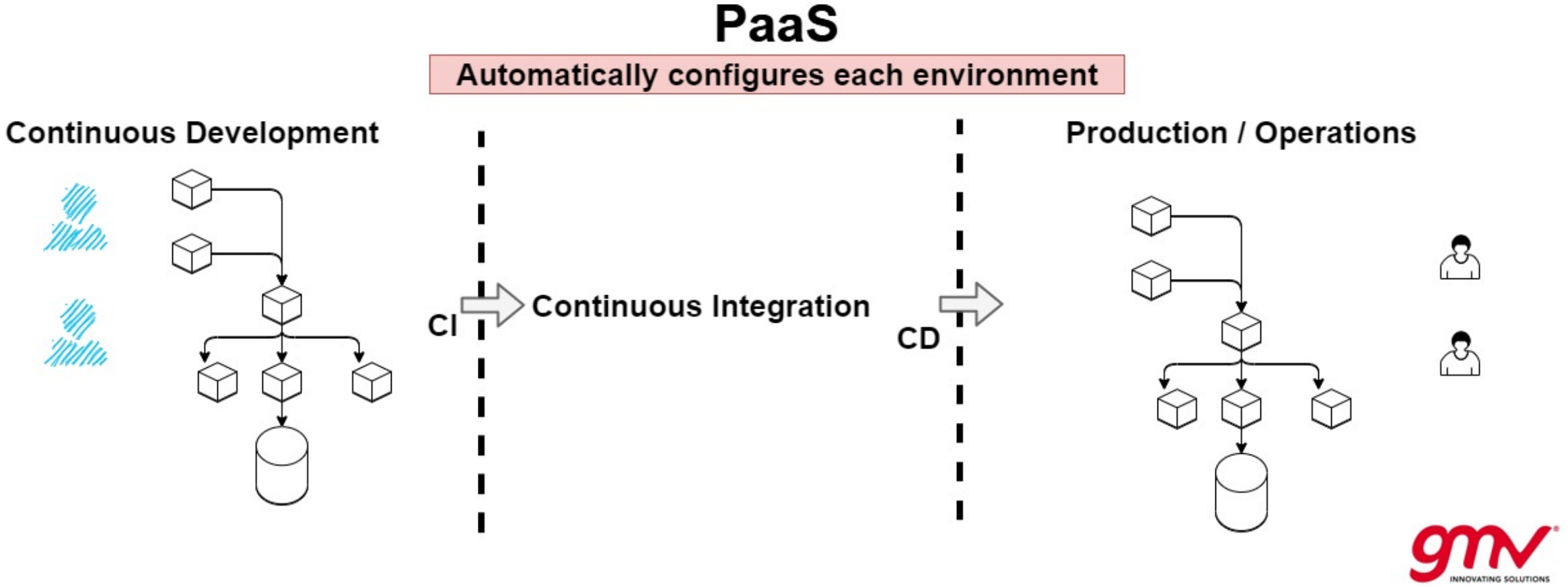
PaaS *provides the operating system and runtime environment for you.*

PaaS *can be Third Party provided or On Premises with a HW resources Team with a key impact on* ***Supportability***

Platform as a Service (PaaS) Architecture II



Platform as a Service (PaaS) Architecture III



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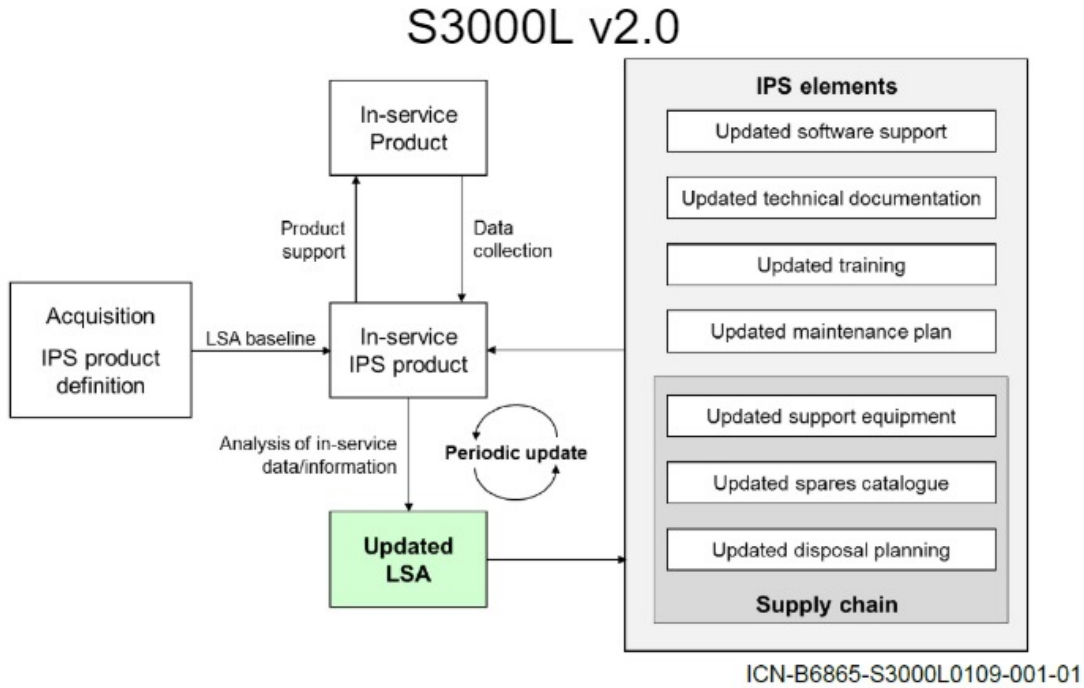
Platform as a Service (PaaS) Challenges for LSA/PSA II

LSA evolved to LSA/ In-Service PSA

- **ILS/LSA and RAMS analisys** ➔ **Design Phase**
- **In-Service IPS Product Analysis** ➔ **Operational Phase**

Periodic updates
Involved in
PaaS
by Continuous
Development &
Continuous Integration



In-Service LSA process

Platform as a Service (PaaS) Challenges for LSA/PSA II

LSA evolved to LSA/ In-Service PSA

- **ILS/LSA and RAMS analisys** ➔ **Design Phase**
- **In-Service IPS Product Analysis** ➔ **Operational Phase**

Questions?

1.- What is the term that you use for **Updated LSA** when it is in the In-Service/Operations phase:

Updated LSA (Logistis Support Analysis)

PSA(In-Service Product Support Analysis)

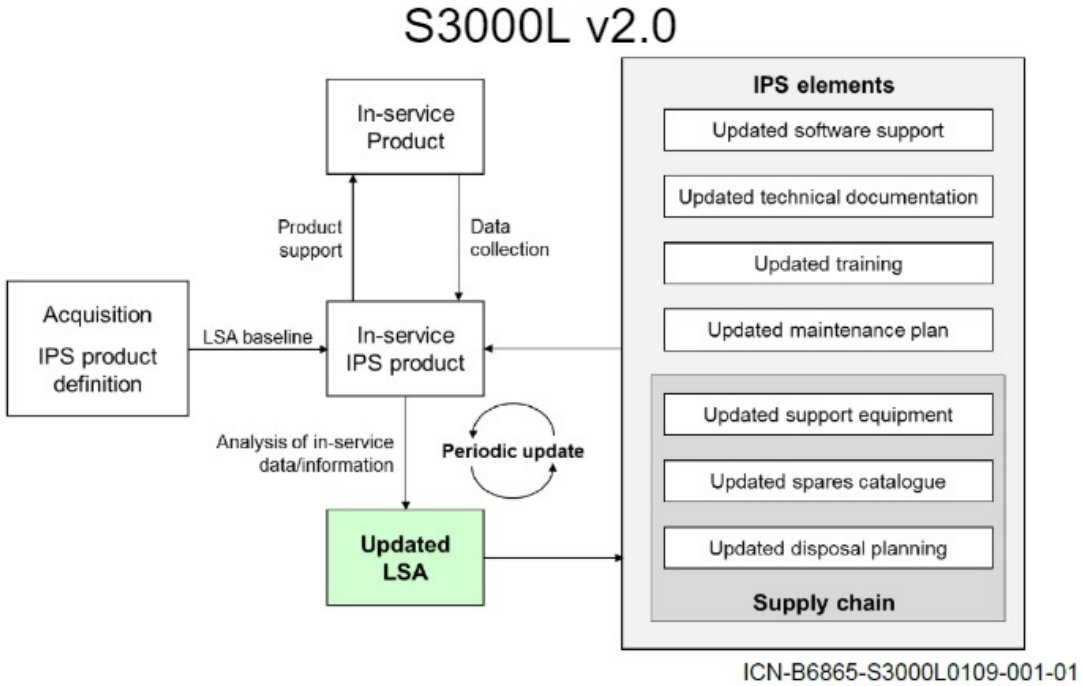
…?

2- Have you **replaced** the term **ILS** by

ISS (In-Service Support)

IPS (Integrated Product Support)

…?



In-Service LSA process

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PAS techniques for Platform as a Service (PaaS)

In-Service PSA techniques to be implemented in a Platform as a Service (PaaS) Virtual Platforms-continuous development which are innovative based on S3000L are:

- **Breakdown Element Identifier**
- **Failure/Data Reporting Analysis and Corrective Action System (FRACAS/DRACAS)**
- **Condition Based Maintenance (CBM)**

Breakdown Element Identifier – BEI I

Breakdown Element Identifier (BEI):Identifies an individual breakdown element defined within a functional, physical, or any other type of Product breakdown. In the case of a physical breakdown element, there is also an indication of the installation location.

- **BEI approach for PaaS (Platforms as a Service)**

  Can be defined in two tyes of breakdowns:

  – **Physical approach** is as a classical LSA based on LCN (Logistic Control Number from MIL-STD-1388-2A/2B)

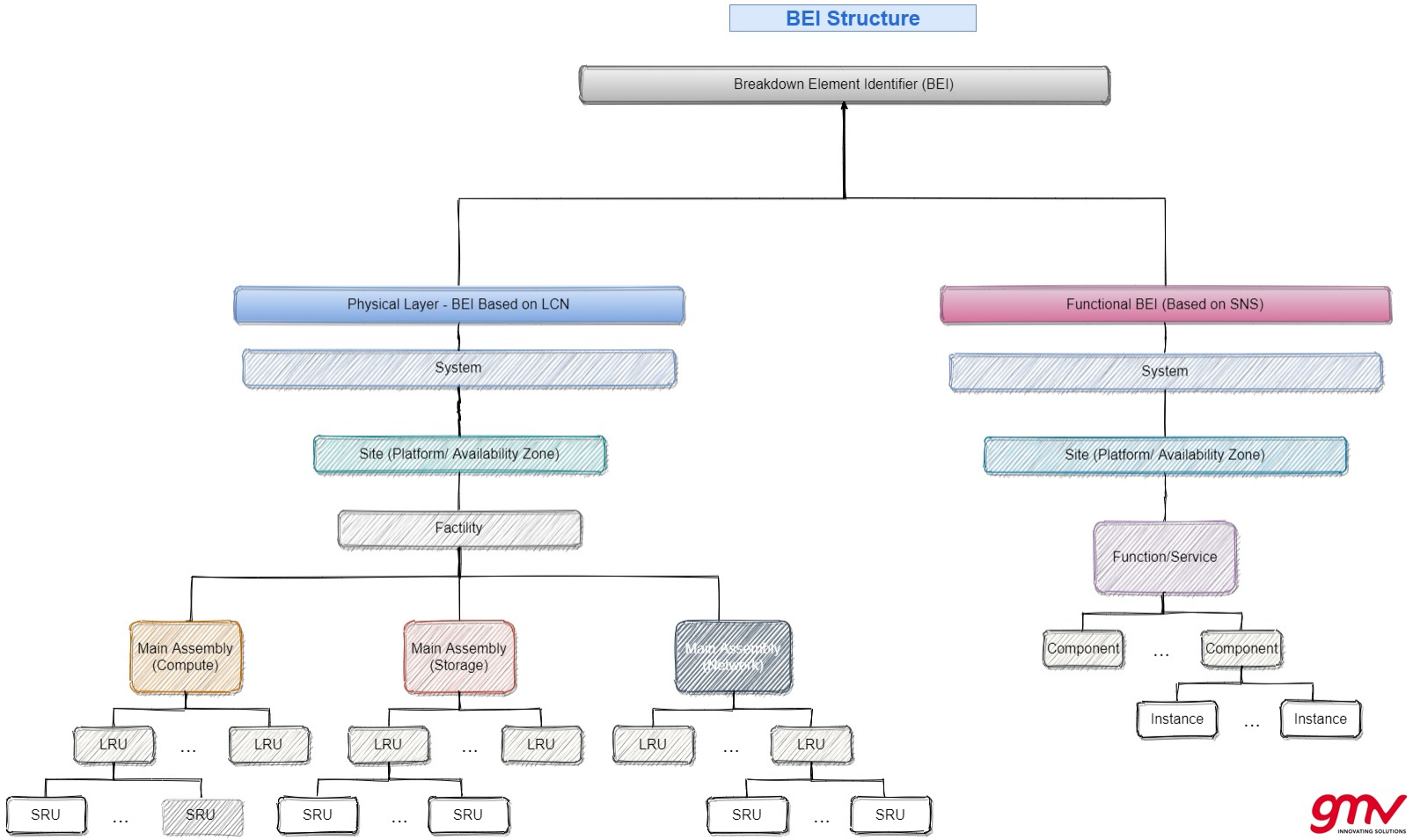
  – **Functional approach** is based on the SNS (from S1000D)

HW components can be located on PaaS through ***physical breakdowns***

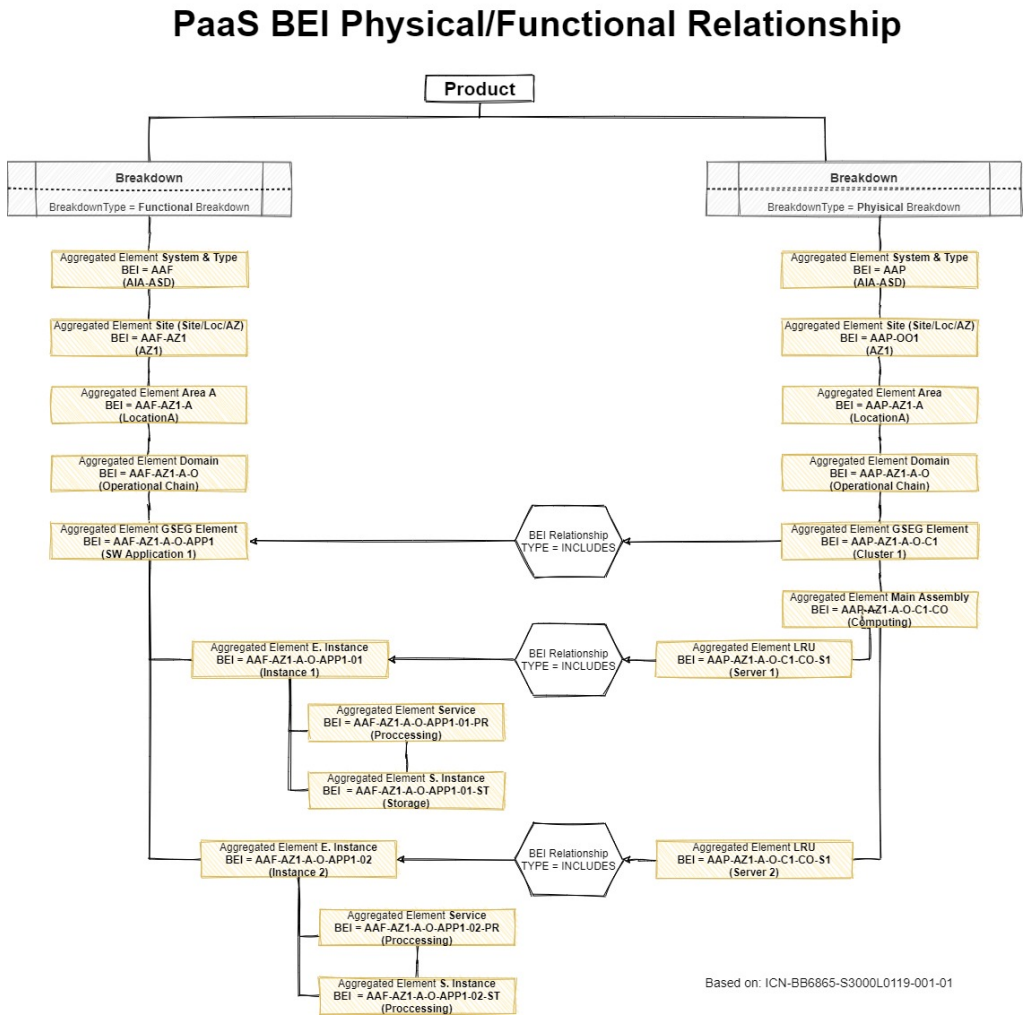
SW components can be associated through ***functional breakdowns***

BEI is a key field used to trace system components to support tasks
ALC is not considered in the S3000L v2.0➔ LCN & ALC must be concatenated in BEI

Breakdown Element Identifier – BEI II



Breakdown Element Identifier – BEI III



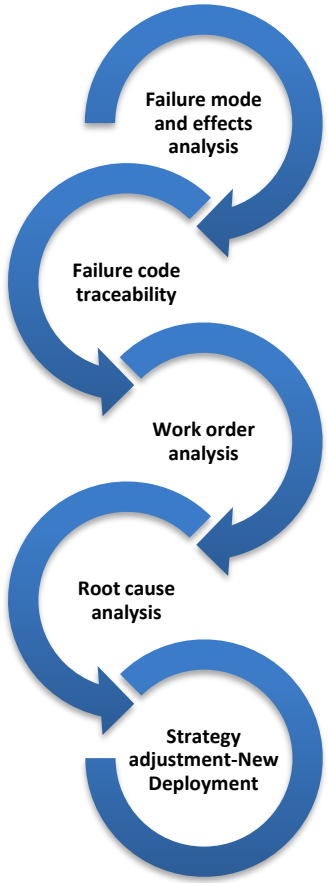
Physical & Functional BEIs shall be related to:

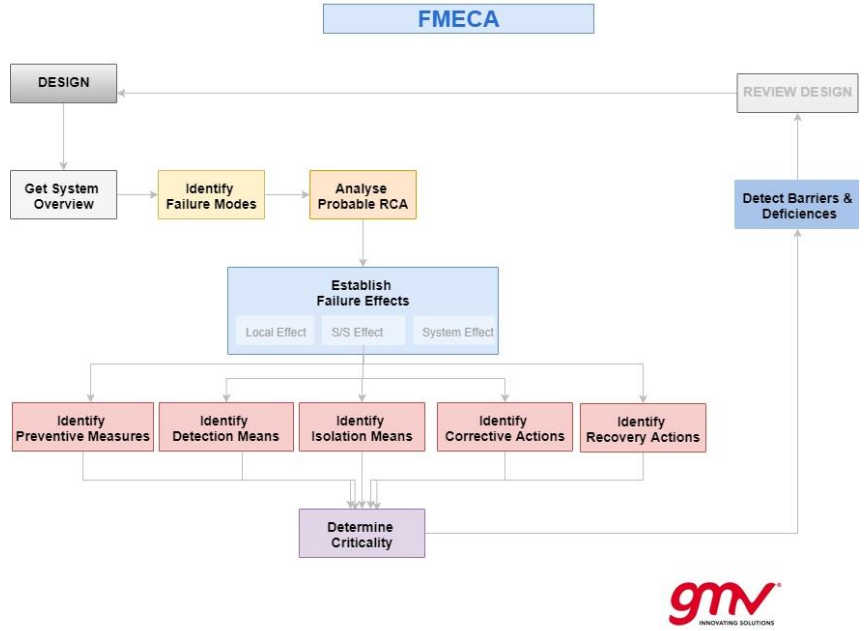
- Maintain ***traceability*** in case of ***failures***
- Extract ***Patterns*** about ***Services Execution***

Failure/Data Reporting Analysis and Corrective Action System (FRACAS/DRACAS)

FRACAS provides a structured process for the calculation of reliability parameters such as the Mean Time Between Failures based on real operation data of the system through:

- **Failure reporting**
- **Failure analysis**
- **Failure correction**



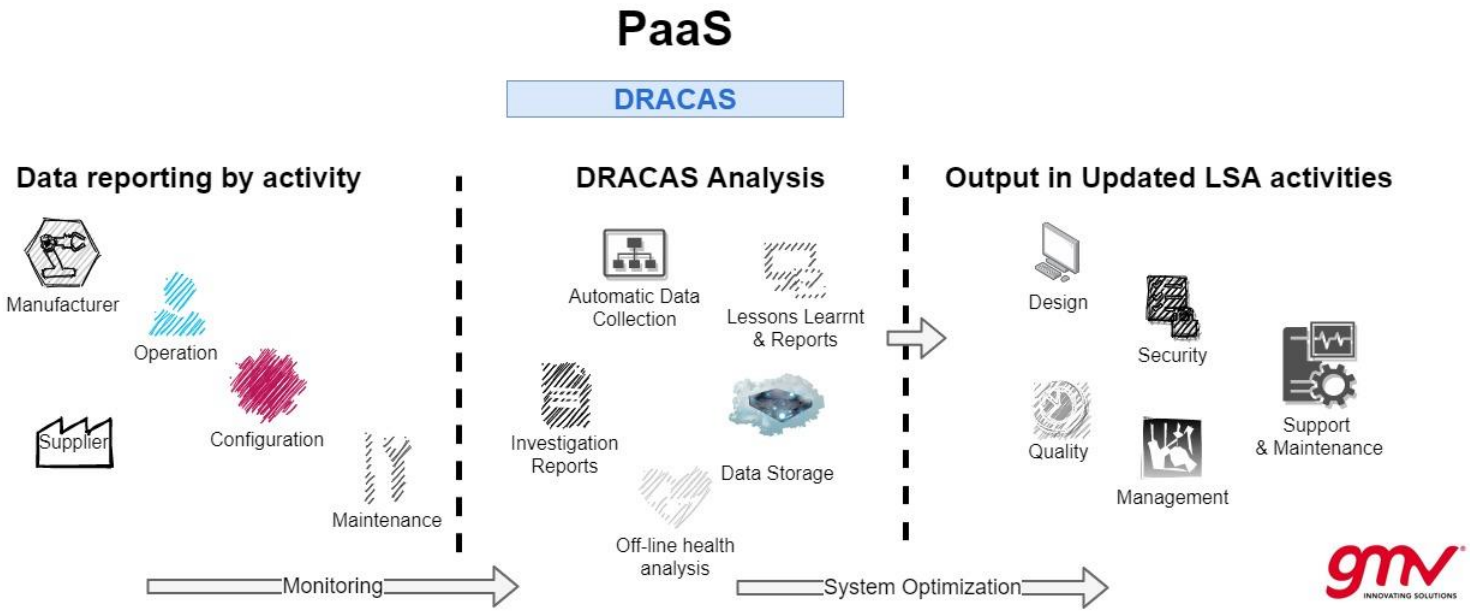


Failure/Data Reporting Analysis and Corrective Action System (FRACAS/DRACAS) II

Data Reporting and Corrective Action System (DRACAS) for reporting, collecting, recording, analyzing, categorizing, investigating and taking timely effective corrective action on all discrepancies and failures relating to design, manufacturing and test processes.

DRACAS requires:

- A ***Template*** with representantive ***data to be stored***
- ***Triggers*** to collect **data to be stored**



Condition Based Maintenance (CBM)

Condition-based maintenance (CBM) or Predictive Maintenance based on collecting and analyzing data, which can be used to identify **trends** in asset performance and assess where an asset is in its lifecycle.

CBM improves Preventive Maintenance because:

- System is **continuosly analised** before its replacement
- Operators can also **anticipate failures**

Thank You

for your attention!

Questions?

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