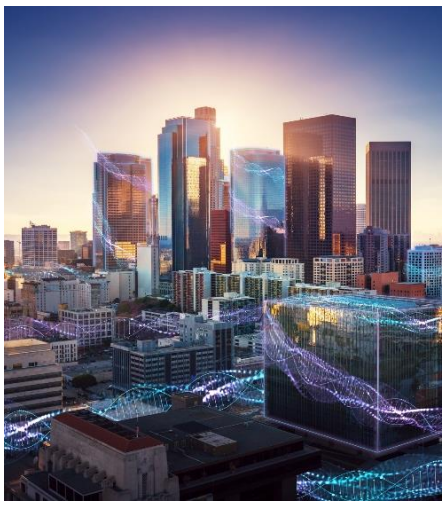
Fsas Technologies
a Fujitsu company

BestPlace Service

Data-Driven Cloud Advisor for SAP Workloads

Service Overview



The service provides data-driven decision support on the challenge to identify best-suitable operating environments for given SAP workloads. Based on customer-specific requirements, existing constraints, measured workloads, re-source demands, and cost estimations, a placement recommendation is pro-vided for each assessed SAP system (identified by its SID).

The search space of possible target environments for each SID is formed by the variety of VMs and regions, provided by „Microsoft Azure“, “RISE with SAP” public and private cloud options, and, if applicable, the customer’s on-premises data center.

To measure what is “best suitable”, each potential solution is associated with a score that represents its fulfillment degree of customer requirements, constraints, and the resulting costs. Therefore, the challenge is to identify solutions which maximize the score.

Since this problem class (mathematical optimization) is known to be NP-hard, solutions are proposed by algorithms which belong to the class of me-ta-heuristics. These have been developed by our scientific partner (Otto von Guericke University Magdeburg) for the purpose of this service.

One main component of the score are the resulting costs of an SID being placed in each target environment. In the case of „Microsoft Azure“, infrastructure costs are calculated based on publicly available list prices for compute, network, and storage components. In case of on-premises environments, a generic data center cost model is used and parameterized with customer input. In case of “RISE with SAP”, publicly available information is used to calculate costs. For each environment, a share of monthly basis operations costs is added based on customer input.

In all cases (“Microsoft Azure”, on-premises, and “RISE with SAP”), required components are sized based on real customer workloads and re-source demands. For this purpose, a workload data collection software measures resource demands and capacity for the defined set of SAP systems over a defined period. According to 10+ years of project experience, the data collection’s impact on performance is negligible.

Questions to be answered.

- Which of my SAP workloads are suitable for cloud operations and which are suitable for on-premises?
- What's the monthly cost estimation to operate my SAP workloads in "Microsoft Azure" or as part of a "RISE with SAP" contract?
- What's the most cost-effective distribution of my SAP workloads across on-premises infrastructure, „Microsoft Azure" and "RISE with SAP"?
- What's the right level of compute resources at which point in time?
- Is the t-shirt size, proposed by "RISE with SAP" ready to meet all resource demands, measured during business hours?
- How much RFC and HTTP network traffic is being sent and received between my SAP instances?

Product Description

Scope

BestPlace service is applicable for:

- 1 SAP landscape (including Fsas and Non-Fsas hardware, including on-premises and off-premises SAP systems) per "base module". If a landscape is separated into network segments or pools, each pool may require a separate "base module"
- 1 SID per "standard module" or a set of SIDs per "scale module" within the above-mentioned landscape to be assessed (Please find additional details on Standard vs. Scale at the end of this document)
- Additional SIDs within the above-mentioned landscape can be measured but won't be subject to the assessment (e.g., to take RFC connections between assessed and measured systems into account)
- An arbitrary measurement period of up to 3 months (typically 4 weeks to have a representative timeframe that covers monthly patterns)
- Assessing potential target environments including an on-premises data center, any MS Azure region, and RISE with SAP

Deliverables

The overall objective of the service is to identify the best suitable operating environment for each SAP system, which is subject to the assessment. The service will be delivered in the following formats:

- **Consultancy workshops:** Remote sessions (2-4 hours in total) in which Fsas collects customer input required to provide individual decision support. Input to be discussed includes strategic criteria as well as cost-related parameters.
- **Result presentation:** Remote session (~2-3 hours in total) in which Fsas presents and explains the outcomes.
- **Structured report:** A PPTX/PDF file, handed over after result presentation, including a summary of the service outcomes and all measured data used as part of the assessment.

The measured data, being processed and handed over to the customer as part of the structured report, include the following metrics:

- Hourly SAPS demand over the measurement period for each measured SID, including application and database instances
- Hourly memory demand over the measurement period for each measured SID, including application and database instances
- Hourly number of executed dialog steps over the measurement period for each measured SID (except for JAVA stack)
- SAPS and memory capacity for each measured server
- Size of data and log volumes for measured databases
- Network traffic being sent and received via RFC and HTTP protocols for each measured SID (except for JAVA stack)
- For decision support, metrics and customer input are processed, leading to the following results:
    - Placement decision support for each assessed SID. Based on a linear weighted scoring model, Fsas identifies:
        - the best hybrid cloud solution
        - the best cloud-only solution for “Microsoft Azure” or “RISE with SAP” and
        - an on-prem solution.
    - Calculated suitability score for each solution on the level of the following requirement dimensions:
        - Cost estimation
        - Constraint fulfillment
        - Strategy match
        - Non-functional requirement fulfillment
        - Skillset match
    - Estimation of monthly running costs for each assessed SID based on the measured data, available pricing information, and a generic cost model that was parameterized with individual customer input
    - Cost- and strategy-driven recommendations for different reservation options in „Microsoft Azure“ (pay-as-you-go vs. reserved instances) on the basis of measured workloads for each SID
    - Above deliverables are presented and explained during a result presentation.

Customer Input

The quality and applicability of the service results partly depend on the input provided by the customer. To derive meaningful decision support, valid input is required and will be collected through both measurement software and forms. Therefore, the following types of data are expected to be shared with Fsas:

- SAP Workloads as measured by Fsas measurement software (only statistical records, no SAP master data, no transaction data)
- Network traffic entries may contain source and target hostnames or IP addresses for each measured connection
- Future requirements on, e.g., the targeted level of availability, backup policies, and disaster recovery objectives for each SID

- Placement constraints for each SID (e.g., resulting from data compliance requirements)
- Information on existing expertise, existing technical and organizational implications, dependability's, and strategic considerations that would affect placement decisions
- Full Use Equivalent (FUE) licensing demand for RISE with SAP (for each SAP system) or currently licensed number, types, and costs of users (for each SAP system)
- Logical assignment of each system to a bundle of Dev, QA, and Prod systems
- Parameters that affect on-premises infrastructure costs, including co-location costs, rent, personnel costs, staffing levels, and power usage effectiveness. If specific cost types cannot be shared with Fsas, assumptions can be made

Assessment Methodology

The objective is to identify a solution which fits the custom-er-specific requirements best.

A solution is defined by the set of SIDs which are subject to the assessment, and a proposed target environment for each SID (placement). Target environments may be:

- a SAP-certified VM within a specific region in „Microsoft Azure"
- the on-premises data center of the customer
- a usage tier within the "RISE with SAP S/4HANA CLOUD, PRIVATE EDITION" core package
- a usage tier within the "RISE with SAP S/4HANA CLOUD, PUBLIC EDITION" core package (part of GROW with SAP)

Hence, for a given number of potential target environments E and a number of running SAP instances S, the number of possible solutions (search space) equals ES.

As existing preferences, constraints, and strategies are highly customer-specific, the quality of a solution is evaluated based on a score, which represents the solutions suitability to fulfill individual requirements. The components of the score are gathered in a workshop format and form a set of placement criteria, which can be both organizational (e.g. strategic requirements) or workload-specific (e.g. capacity requirements). The score is calculated using weighted linear combination, a method from the domain of multi-attribute decision making (MADM). The subsequent challenge is to identify a solution that maximizes the score. Due to the size of the search space, manual discovery is infeasible (NP-hard problem class) and meta-heuristics are applied to identify solution candidates.

One of the main scoring components are the costs that would result from the placement decisions being defined for a solution. The BestPlace cost model covers estimations for:

- Infrastructure costs
- Costs for SAP Basis operations
- SAP License

Infrastructure costs are calculated based on the resource demands which are derived from the measured data. The demands of each SID, which is subject to the assessment, are associated with prices for the dimension's "compute", "network", and "storage", depending on the respective target environment. For Azure regions and "RISE with SAP" packages, publicly available information is used. Costs for infra-structure addons are added based on SID-specific requirements. For on-premises operations, a generic data center cost model is applied.

Cost estimations for SAP basis operations and SAP license costs are added based on customer input. The existing SAP licenses are transformed to FUEs in "RISE with SAP".

The assessment methodology was developed and evaluated together with external data scientists from the University of Magdeburg.

During optimization, any additionally measured systems (which are not subject to the assessment) will be assumed to remain at their most recent location during the measurement period. These systems may influence network costs, resulting from RFC communication between assessed and measured systems.

Delivery Process

The delivery process can be separated into four workshops:

1. Kick-Off
2. Strategy Workshop
3. Cost Workshop
4. Presentation of Results

Workshops may be combined or separated across appointments if appropriate. In preparation for each workshop, the customer will be provided with a preparation document that allows to identify participants and pre-pare required information. The customer is responsible for identifying and inviting employees who can provide or receive information on the topics, addressed in the respective workshops.

During the Kick-Off, project stakeholders are identified and introduced to the process and timeline of the service delivery. Furthermore, the main contact persons, the scope and the timeframe of the measurement are de-fined together with the customer.

Following the Kick-Off, the measurement software is set up by the customer with support of Fsas. After a mini-mum runtime of 24 hours, a snapshot of the data will be used to evaluate the measurement status and data quality. While workshop 2 may be conducted during the measurement period, workshop 3 cannot be conducted before all data of the completed measurement was transferred to and analyzed by Fsas. Data transfer must be initiated by the customer after a defined measurement period has been completed.

During workshop 2, Fsas will give an impulse presentation on general considerations, benefits, and possible pitfalls regarding “SAP on Azure” and “RISE with SAP”. The goal of the workshop is to gather existing customer requirements, constraints, and strategic placement criteria. Examples include regional preferences, availability demands, or disaster recovery requirements.

Workshop 3 is required to associate placement options with costs, including the customer’s on-premises data center. A generic cost model will be fed with customer parameters to allow for cost estimations, accounted to the SIDs, which are subject to the assessment. If these positions are already known by the customer, the model can be adopted to use direct cost input too.

Input from the workshops 1-3 are used to formulate the customer-specific optimization problem and to parametrize the solution algorithm accordingly. Components of the scoring model (see “Assessment Methodology”) are weighted according to the customer input. Therefore, solutions associated with high scores are expected to fulfill individual customer requirements best. A genetic algorithm implementation, provided by the University of Magdeburg, is used to explore the search space for solutions that maximize the score.

During workshop 4, a set of best scored solution designs is being presented. Fsas will interpret the results and provide details on the influencing factors. Presented results include the following solution types:

- Hybrid solution
- „Microsoft Azure“ cloud-only solution
- “RISE with SAP” cloud-only solution

- On-Premises solution

After this workshop, a report with the presented information and the measured data will be sent to the customer (see “Deliverables”). All reports are performed remotely as the default mode. F2F-workshops are possible but cause additional travel expenses, not covered by the support packs.

Pre-Requisites and Limitations

Due to the dependency on measurement data, the service is limited to SAP systems which run on the technology platform SAP NetWeaver.

Measured network traffic is limited to RFC and HTTP proto-cols. Additional traffic can, however, be added manually based on customer input. Network data may include host names or IP addresses, classified as personal data according to the GDPR.

For SIDs that use the JAVA Stack, any measurable resource demands are limited to CPU requirements, measured in SAPS.

Cost estimations for SAP systems operated inside „Microsoft Azure“ assume “SAP on Azure” reference architectures, publicly provided by Microsoft. Storage costs are based on the usage of “Azure NetApp files”. Any cost estimations and comparisons are made to the best of Fsas’s knowledge but cannot be guaranteed. Costs for „Microsoft Azure“ cloud infrastructure are estimated based on data provided by Microsoft through a pricing API at the time of optimization. „Microsoft Azure“ government regions are excluded from the placement options. Cost estimations for on-premises infra-structure are based on list prices of current Fsas infrastructure components that would be able to handle the measured workloads and the Fsas SAP operations solution PRIMEFLEX for SAP Landscapes.

Cost estimations for “RISE with SAP” are limited to publicly available pricing information of Full Use Equivalents (FUEs) and infrastructure related addons. Additional costs for line of business modules or API accesses can be factored in if pro-vided by the customer.

The service is applicable during the design phase of a new SAP environment or the continuous improvement process as part of capacity management activities. Actual solution deployment and operations are out of the scope of this service. SID placements made throughout the process are theoretical placements that form a solution design.

Placements will be calculated on an SID level. Multiple application instances that form an SID, will always be placed in the same region while their distribution on multiple VMs is possible.

Furthermore, the customer agrees to the following conditions as pursuant to the delivery of the service defined:

- Make available necessary personnel with authority and associated skills
- Installation of the collector software is performed by the customer according to the Installation Guide
- Secured transfer of the collected data by the customer to the Fsas central FTP server in line with GDPR regulations for data privacy

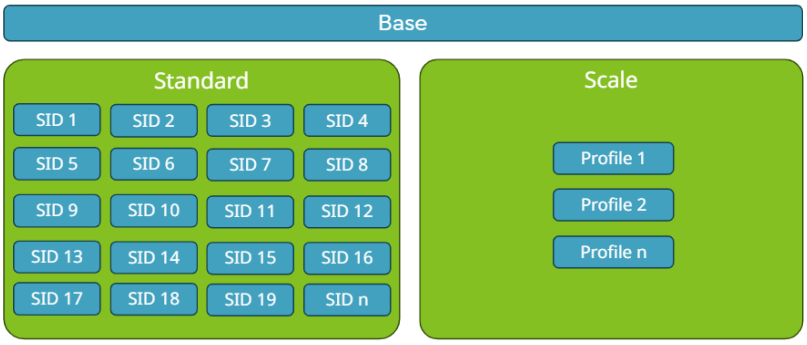
Partners

To ensure a maximum of neutrality and objectivity, the methodology that is applied by BestPlace, was developed and evaluated together with external scientists from the Otto von Guericke University Magdeburg. The university acts as scientific partner, therefore, data collected as part of the service will be shared with involved data scientists. Shared data does not include any person-al information (except for measured host names and IP addresses) or details that would allow to identify the customer.

Sales and Operations

BestPlace is available in two versions:

- BestPlace Standard
  - made for highly individual environments where each SID has different requirements and costs
  - Most tailored offering
- BestPlace Scale
  - Made for large environments where SAP systems can be grouped into classes of similar requirements and costs
  - Most cost-efficient offering



Both versions require the unified base module per measurement (e.g., per FlexFrame pool or per separated network). On top, additional standard or scale modules must be added based on the size of the customer's SAP landscape.

As depicted in the above Figure, for BestPlace Standard, one module is required per SID. In BestPlace Scale, SIDs are grouped into profiles of similar requirements (E.g. PROD, DEV, and QAS) and one scale module must be purchased for each of these profiles.

BestPlace Scale

BestPlace Scale is a new offering, which scales well with the size of the landscape and reduces costs for the requirement analysis significantly. As SIDs are grouped and the requirement analysis is carried out on a profile level, SIDs in one profile share the same requirements on:

- Availability level
- Backup Policy
- Disaster Recovery

- Sizing buffers
- Strategic direction
- Weighting of the decision dimensions

SIDs in one profile may still have different placement constraints and final placements.

The number of requirement profiles must be aligned with the customer before making an offer. A typical scale configuration for one SAP landscape with an arbitrary number of SIDs may look like this:

- 1x base module (for the measurement)
- 3x scale modules (for all SIDs that can be classified as prod, dev, or QA)

BestPlace Standard

In BestPlace standard, the requirement analysis is made for each SID individually. Therefore, BestPlace standard is applicable:

- if typical system classes such as PROD, DEV, or QA, do not match the customer's topology
- if costs must be gathered for each SID in a highly individual cost model

A typical BestPlace Standard configuration for one SAP landscape with 10 SIDs may look like this:

- 1x base module (for the measurement)
- 10x standard modules (one for each SID)

Order Codes

Three different modules are available as packaged services (Support Pack), which can be conveniently purchased in the desired quantity depending on the individual requirements. Be aware that, if a landscape is separated into network segments or pools, each pool may require a separate "base module".

Order Codes

Codes for use in Germany		
	FSP:G-PA29200PRDDS	BestPlace base Module
	FSP:G-PA35900PRDDS	BestPlace scale module, 1 profile
	FSP:G-PA30900PRDDS	BestPlace standard module, 1 SID

Codes for use outside of Germany		
	FSP:G-PA292XXPRDDS	BestPlace base Module
	FSP:G-PA359XXPRDDS	BestPlace scale module, 1 profile
	FSP:G-PA309XXPRDDS	BestPlace standard module, 1 SID

* These Services are provided on the basis that the devices are all being installed at the same location during the same visit.

More information

Fsas Technologies products, solutions & services
In addition to BestPlace Service, Fsas Technologies provides a range of platform solutions. They combine reliable Fsas Technologies products with the best in services, know-how and worldwide partnerships.

Fsas Technologies Portfolio
Built on industry standards, Fsas Technologies offers a full portfolio of datacenter hardware, software and related services. This allows customers to select alternative sourcing and delivery models to increase their business agility and to improve their IT operation's reliability.

Data Center Solutions
https://www.fsastech.com/en-eu/

More information
To learn more about the Fsas Assessment Services for SAP, please contact your Fsas Technologies sales representative or Business partner, or visit our website.

Fujitsu green policy innovation
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