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ITBI
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IT Business Intelligence Solutions

ITBI

IT Business Intelligence (ITBI) is a unique software solution that collects and enriches enormous amounts of capacity and performance data from the company's multi-platform IT infrastructure. Conceptually it is Business Intelligence for IT – ITBI – and provides insight into capacity management, IT operational efficiency and DevOps. By combining the technical information with data from applications, business processes and cost the ITBI solution creates information that is relevant to both infrastructure operations as well as application developers, IT management, contract management and IT finance.
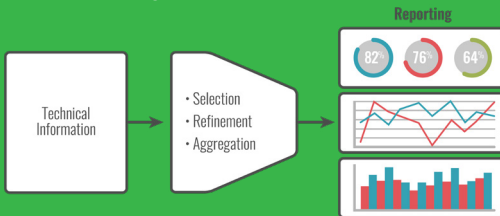

Fig. 1: ITBI – Automated collection and processing of IT data

By funneling technical information and passing it through a selection-refinement and aggregation process, and generating reports, ITBI can help management reduce IT capacity related costs by 15 to 20% – it creates transparency into the cost drivers within the IT installation, and insight into how business activities affect those cost drivers. More specifically, ITBI helps save on costs by:

- Reducing IT infrastructure costs while enhancing utilization and performance
- Linking IT resource consumption and IT costs to business activity
- Controlling outsourcing providers and optimizing outsourcing costs
- DevOps transparency: Explain application development's impact on IT operational costs
- Consolidating assets and balancing load before / after M&A, cloud etc.
- Reducing the time spent analyzing and reporting

How ITBI works

ITBI Reporting

ITBI gathers technical data from all datacenter platforms – midrange Windows and Linux servers, as well as mainframe systems. Technical data is then mapped to the customer's application structure, organization and related costs. In this way, technical language is translated to business terms – from Gigabits per second to millions of dollars per quarter, in a well-structured data warehouse. The technical data isstandard (WMI, SSH, SMF, etc.), however the mapping is always unique to the customer.

There are three main logical parts of ITBI: data collection, ITBI processing, and final analysis and presentation. Data collection leverages standard interface and reporting facilities available on Windows, mainframe and Linux platforms. Processing transforms raw platform data into a data warehouse, from which OLAP cubes are generated. ITBI analysis and presentation filters cube information into intuitive strategic, tactical and operational reports.

ITBI Platform and Analysis and Presentation are normally provided as a cloud based service, but can also be installed on a Windows server in the customer's data center.
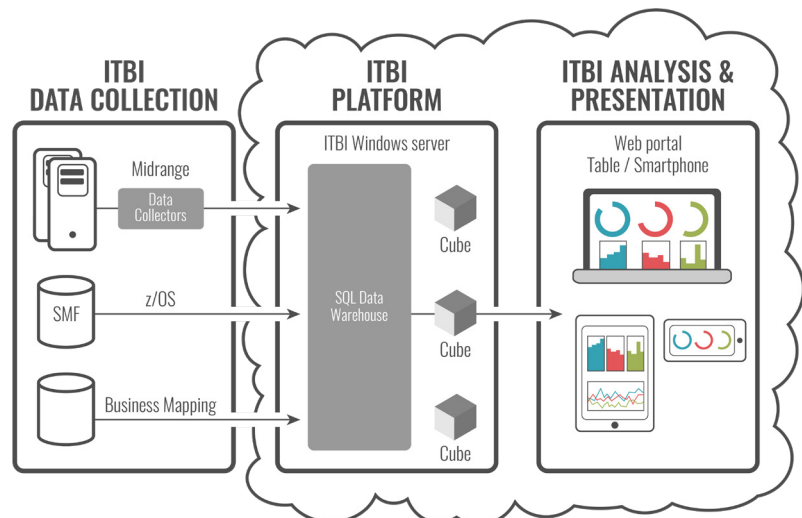

Fig. 2: ITBI Data collection, platform and presentation

Mainframe data collection

Mainframe data is collected from SMF records that are downloaded to a Windows Server. No software needs to be installed on the mainframe. The following data is collected:

Minimum Set:

- SMF 30 (Accounting)
- RMF 70 (Processor Activity and Crypto)
- RMF 72 (Workload Activity)

Also recommended:

- SMF 101 (Db2)
- SMF 110 (CICS)
- IMS log data type '56FA' (IMS transactions)
- Dcollect (Disk usage)

Optional:

- SMF 71, 75 (Paging)
- SMF 74 (Device Activity)
- SMF 78 (I/O Queuing)
- SMF 89 (Software)
- SMF 113 (Processor and Cache usage)
- SMF 116 (MQ)
- SMF 119 (TCPIP)
- SMF 120 (Websphere)

Windows data collection

MXG utilities are running on a WPS platform on the ITBI server. Here are examples of WMI classes used for data collection:

- Win32_Volume
- Win32_OperatingSystem
- Win32_ComputerSystem
- Win32_PerfFromattedData_*
- Win32_PerfRawData_*:

Data structuring

ITBI structures data into OLAP data cubes containing measures – building blocks for the cube that include capacity measurements and utilization like CPU, memory and disk. Specifically, these measures are MIPS, CPU cores, RAM, transactions, disk space, bandwidth, percent utilization, free space, transfer rates, etc.

Each data cube contains dimension data about the measurements, i.e., when, where and what was measured. This includes time-base dimensions (date, time, period, etc.), technical dimensions (LPAR, Sysplex, server name, OS, transaction name, logical disk name, process name, processor number, computer model, etc.) as well as business dimensions (organization, application, service provider, SLA, etc.). Dimensions can be hierarchical.

Linux data collection

Linux data is collected from Linux servers via SSH. Here are examples of Linux commands used for data collection:

- iostat
- vmstat
- df
- ps

A central collector accesses the servers in 10 minute intervals via WMI (Windows) or SSH (Linux/Unix).
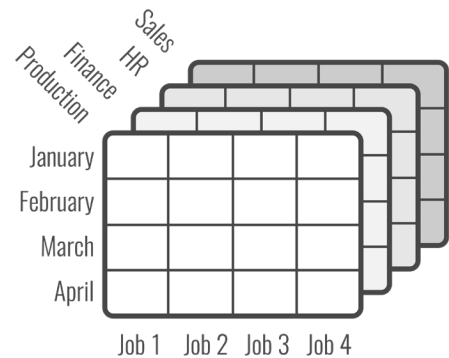

Fig. 3: ITBI OLAP data cube containing measures and dimensions

Data presentation

ITBI delivers Windows, browser and mobile-format reports, including dashboards, graphs tables and agents that are standardized and based on reporting best-practices. They are highly customizable and interlinked to support slice, dice and drill-down.

ITBI System requirements

- Windows Server 2008 or later
- SQL Server 2008 R2 or later
- Additional requirements for mainframe data: MXG and WPS or SAS

Fig. 4: Example ITBI presentation dashboards