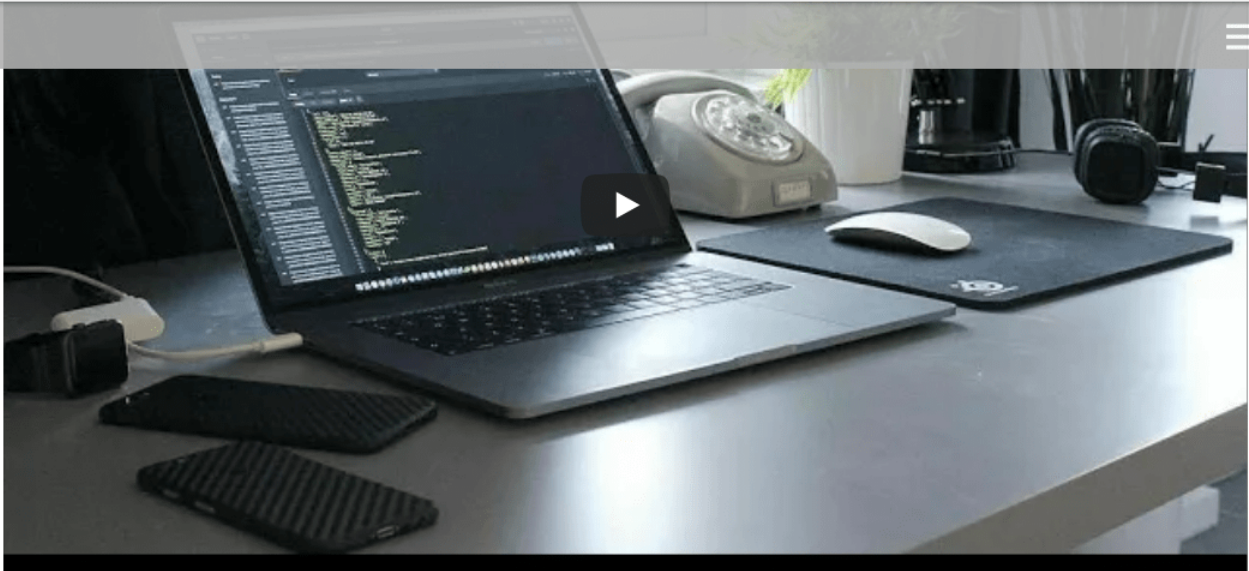


SAP Learning Made Easy



**Ethic Coder**

[www.abaper.weebly.com](http://www.abaper.weebly.com)



**Hello there, I am Pavan Golesar.  
This Blog is just a small step towards something big.**

**If you are visiting this site [www.abaper.weebly.com](http://www.abaper.weebly.com), you may wonder what it is all about. The answer is: It is about ERP(Software) called SAP, with a focus on products of the company SAP AG.**

**This site is intended to be a collection of useful articles and other materials which can help you understand how SAP works and how you can work with it. These articles are published on youtube, Facebook, Twitter and Google Plus Profiles. It covers technical, educational, and psychological aspects of working with SAP, mostly from the point of view of consultants or people responsible for implementing/coding in SAP.**

**Ethic Coder likes to share his own knowledge, that's why he decided to create this site. SAP-dedicated materials are in the majority on this site.**

**If you like this site, we hope you'll become a permanent reader. You can bookmark it, you can subscribe to the Youtube Channel or e-mail updates, or you can follow us on Twitter or Facebook. Of course, Ethic Coder will be happy if you share the knowledge with your colleagues and friends.**

**Forwarded by,  
Pavan Golesar**

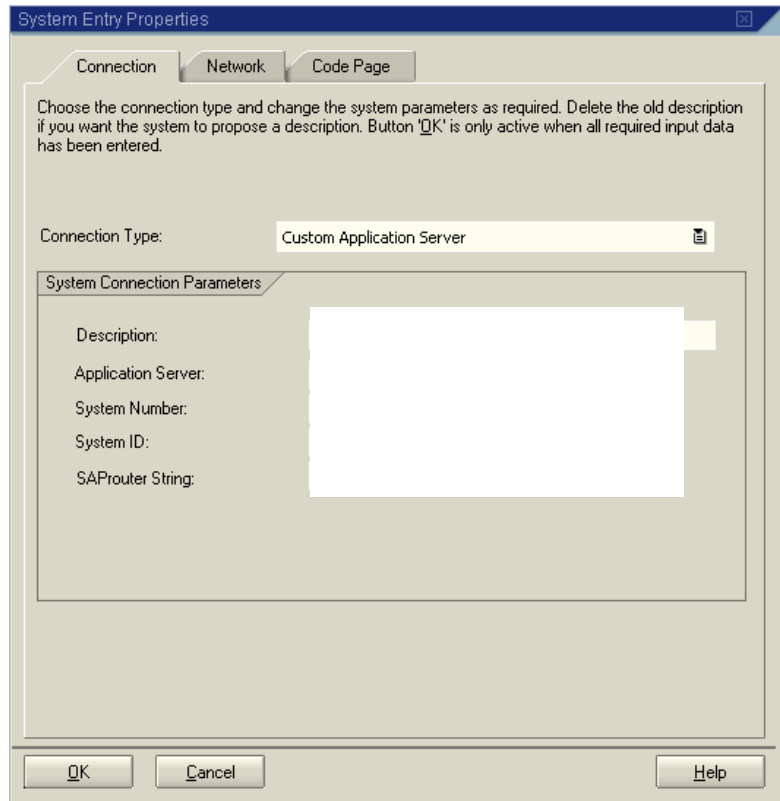
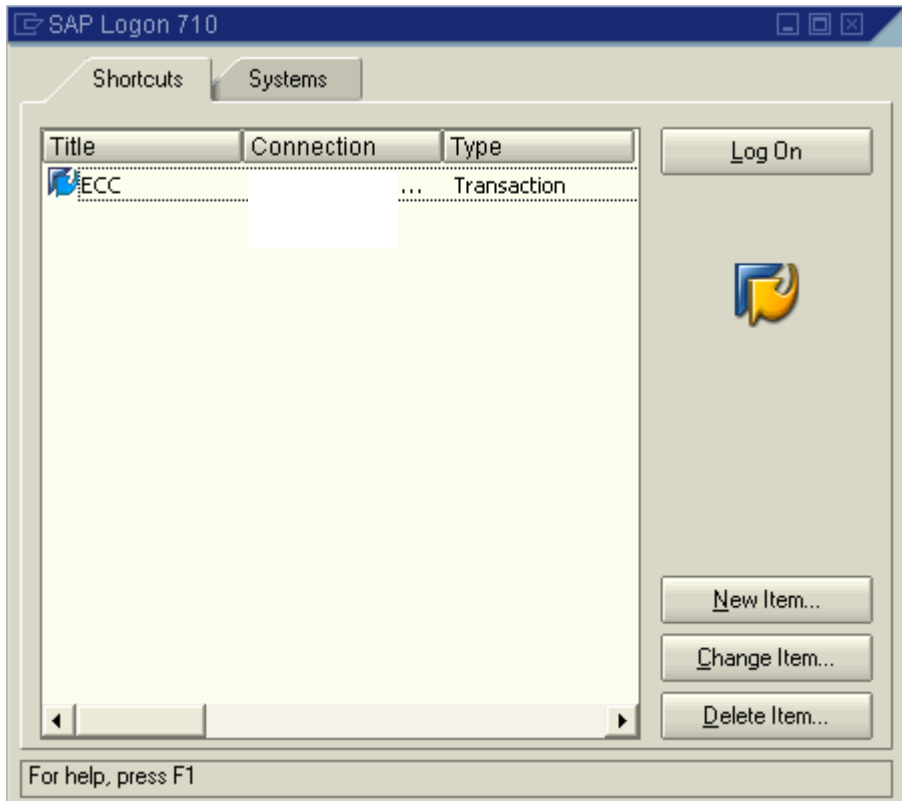
# **SAP LOGON Overview**

## **By Pavan Golesar**

**[www.abaper.weebly.com](http://www.abaper.weebly.com)**

# Overview screen of SAP LOGON PAD

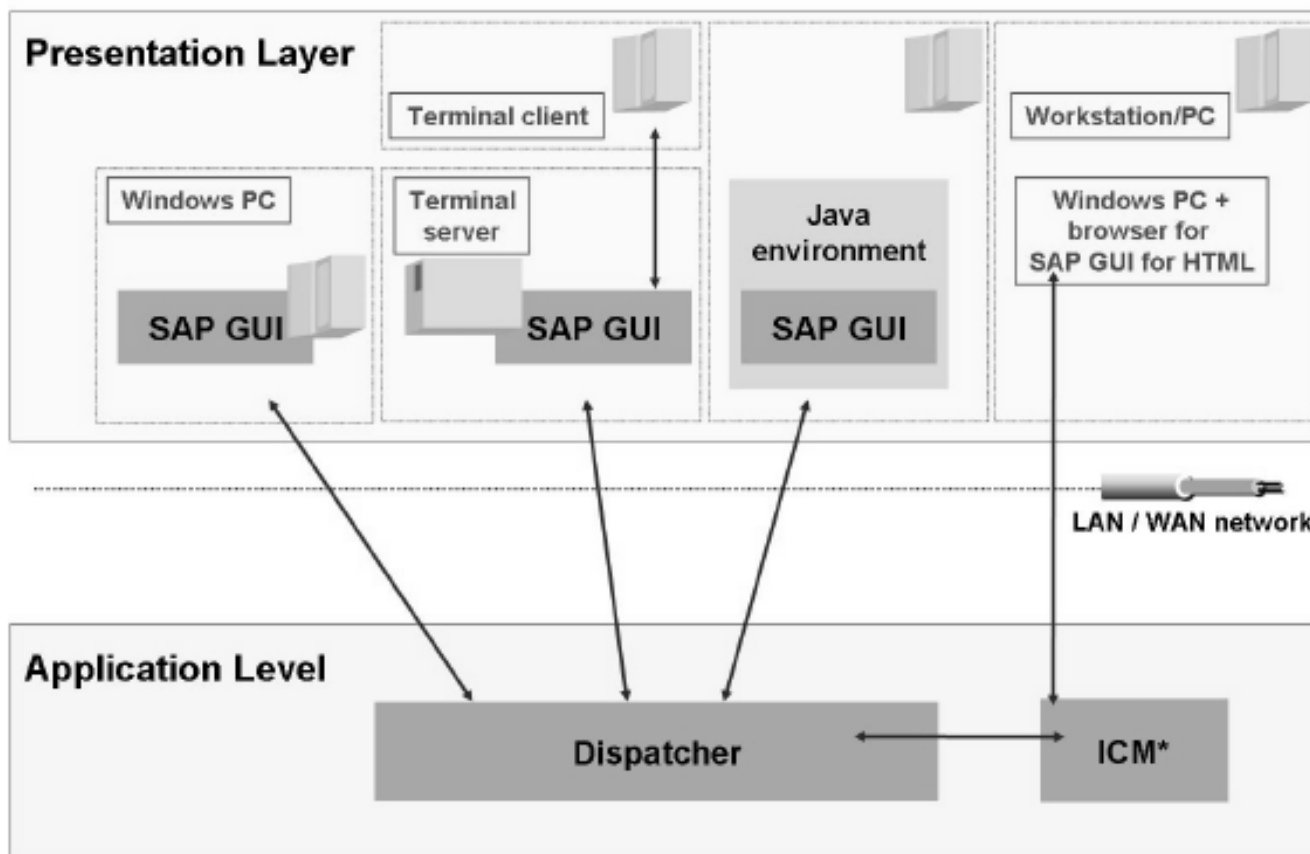
- Users in SAP use the SAP Frontend , called SAPGUI as shown below. The details of the system to login into has to be specified in the SAP Logon Pad



# What is SAPGUI ?

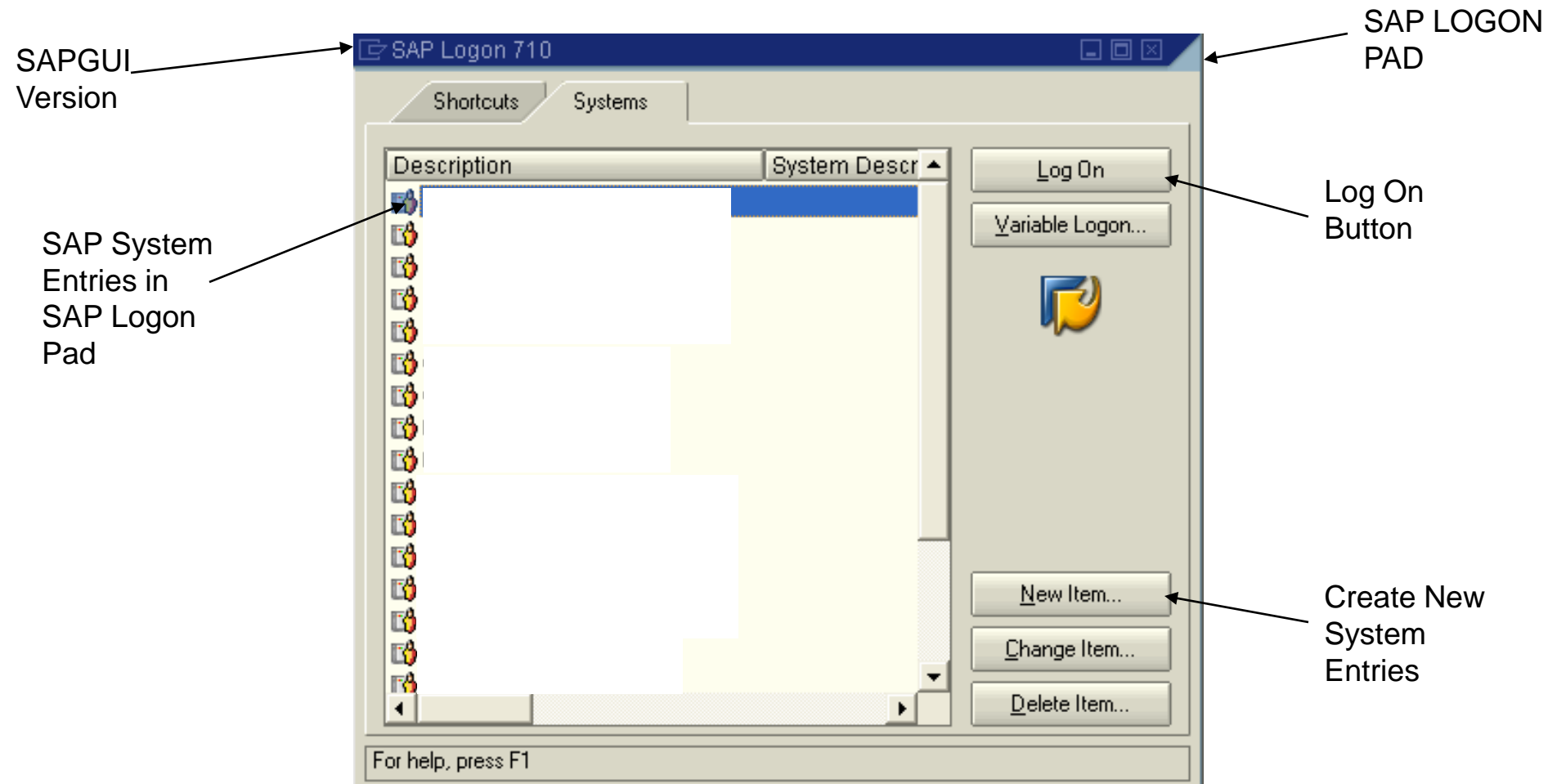
- There are various ways to access an SAP System. The most commonly used are SAPGUI for Windows , SAPGUI for JAVA and WEBGUI for browsers.
- SAPGUI is a client utility that has to be installed on a user's machine.
- SAPGUI is available for installation on Windows and on Non-Windows platforms as well.
- A JAVA based SAPGUI is required for OS such as Linux or any other Unix flavour
- SAPGUI is available as SAPGUI for HTML , popularly called WEBGUI , that is supported on most common browsers such as IE 6 , Firefox 3
- For Windows desktops , the entries in the SAPGUI logon pad are stored in a file called saplogon.ini file , which is located in the path C:\Windows

# Alternative types of SAPGUI



\* ICM = Internet Communication Manager

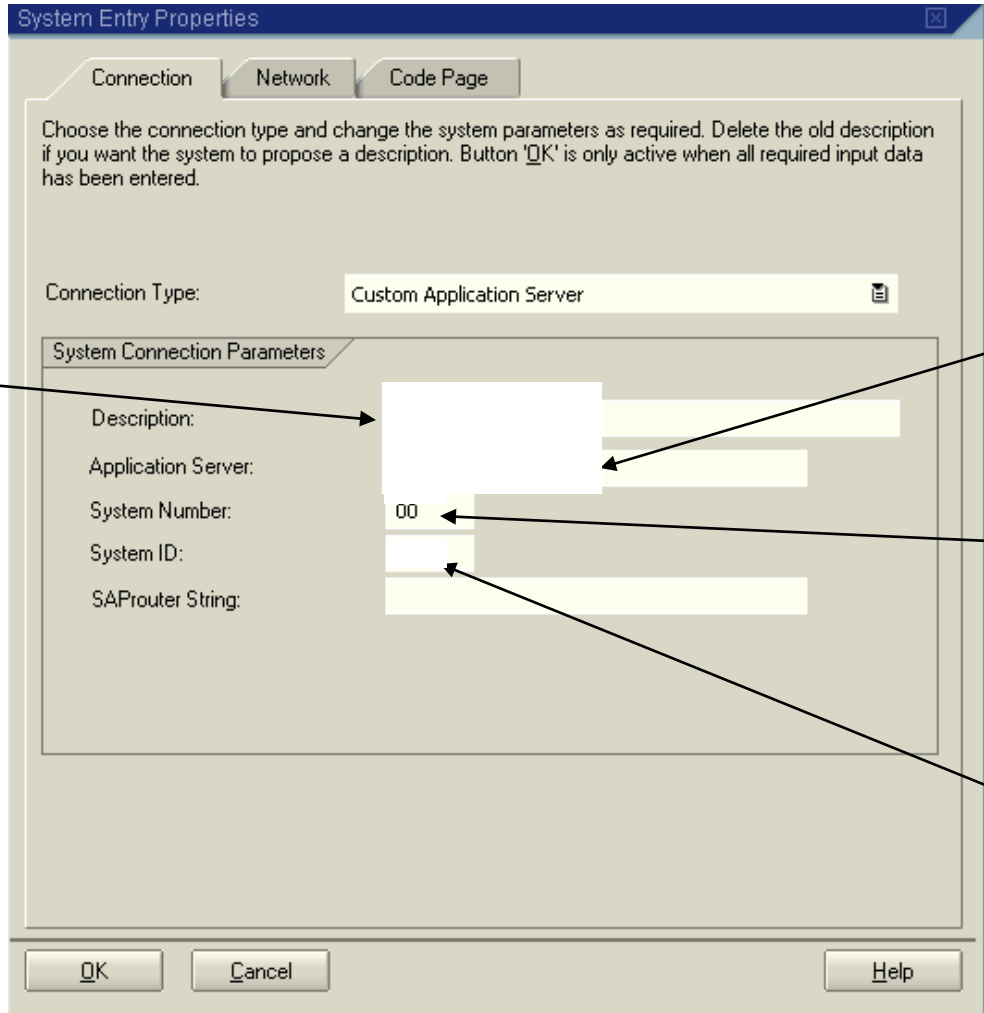
# Navigation using SAPGUI



ELEMENTS OF SAPGUI

# System Entry in SAPGUI

Description of the SAP System. This can have any convenient name as per the users choice



SAP Application Server Host Name or IP address

SAP System Number

System ID



# SAP Logon Screen

The screenshot shows the SAP Logon screen with the following elements and annotations:

- Client:** A text box containing the value "800". An arrow points to it with the label "Client Number".
- User:** A text box for entering the user ID. An arrow points to it with the label "User ID".
- Password:** A text box containing masked characters "\*\*\*\*\*". An arrow points to it with the label "Password".
- Language:** A text box for selecting a language. An arrow points to it with the label "2 Character Language Field : By default the system takes EN if left blank. (EN – English)".
- New password:** A button labeled "New password" with an arrow pointing to it and the text "You can change your password once a day".

The interface includes a menu bar with "User", "System", and "Help" options, and a toolbar with various icons. The SAP logo is visible in the top right corner.

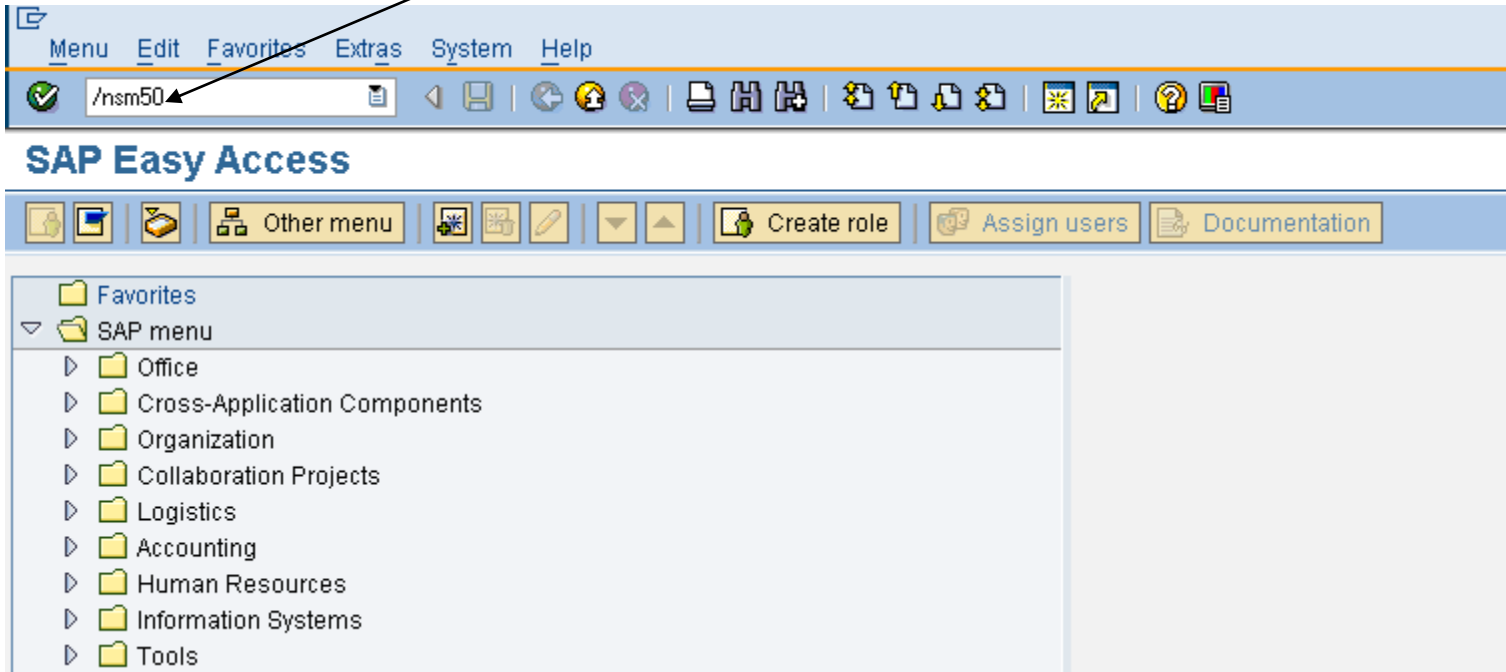
Note :

Client Number is a logical unit of an SAP system

Password field is case-sensitive

# SAP Logon Screen

Field to enter Transaction Code



- In SAP , all operations are carried out using Transaction Codes. These are codes that can call reports, programs from the users screen.
- /n denotes a new session. A user can open upto maximum of 6 sessions where he/she can parallelly work
- /o followed by a transaction code causes the transaction to open in a new session.
- Each new session means a new window opened on your computer

# **SAP Basis Overview**

## **By Pavan Golesar**

**[www.abaper.weebly.com](http://www.abaper.weebly.com)**

# SAP Components and Solutions - Overview

- SAP is an acronym for **Systems , Applications and Products for Data Processing**
- SAP's **ECC 6.0 (Enterprise Core Components)** provide the core solutions for running enterprise business processes in **Financials, Logistics and Human Resources**
- SAP's **Netweaver 7.0 Platform** provide the computing environment for managing the core ECC applications using the **Web Application Server 7.0 (WAS 7.0)**. The server can power business application programming in **ABAP** as well in **JAVA**
- SAP's **Netweaver 7.0 Platforms** power **Business Analytics and Reporting (BI 7.0) , Process Integration with other enterprise components (PI 7.0) , Data Management (MDM 5.5) and People Integration and Collaboration (EP 7.0)**
- SAP **Cross-Application Business suite components , such as CRM , SRM , SCM** are built on the core business functions provided in **ECC 6.0**
- SAP provides a wide ranging set of solutions for specific Industries , such as **Utilities , Retail , Oil & Gas , Aerospace , Mining etc , known as SAP Industry Solutions.**

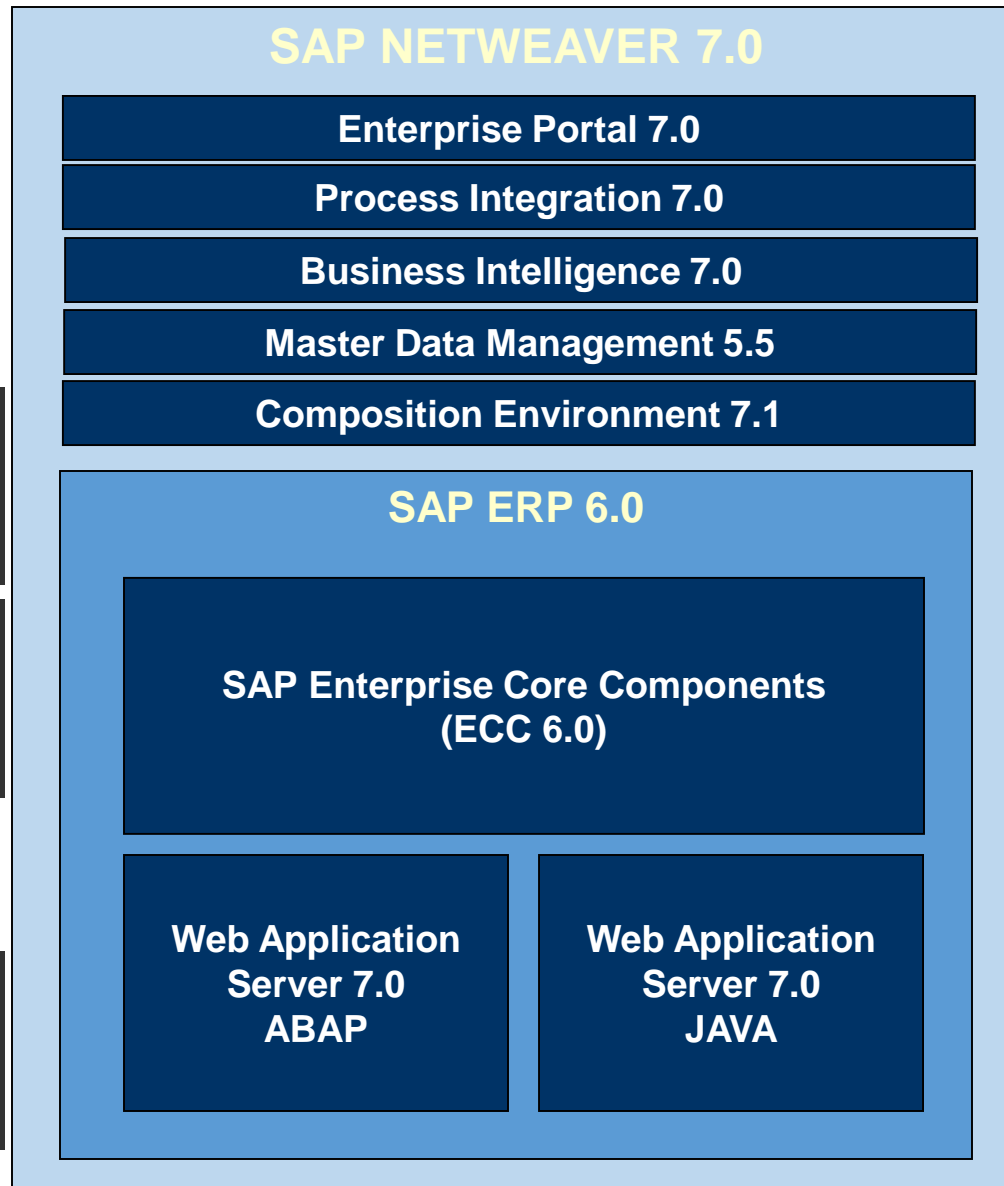
# SAP Components & Solutions : Positioning

People  
Integration &  
Collaboration

Composites  
Development –  
SOA  
Enablement

Application  
Platform – Core  
Business  
Functions

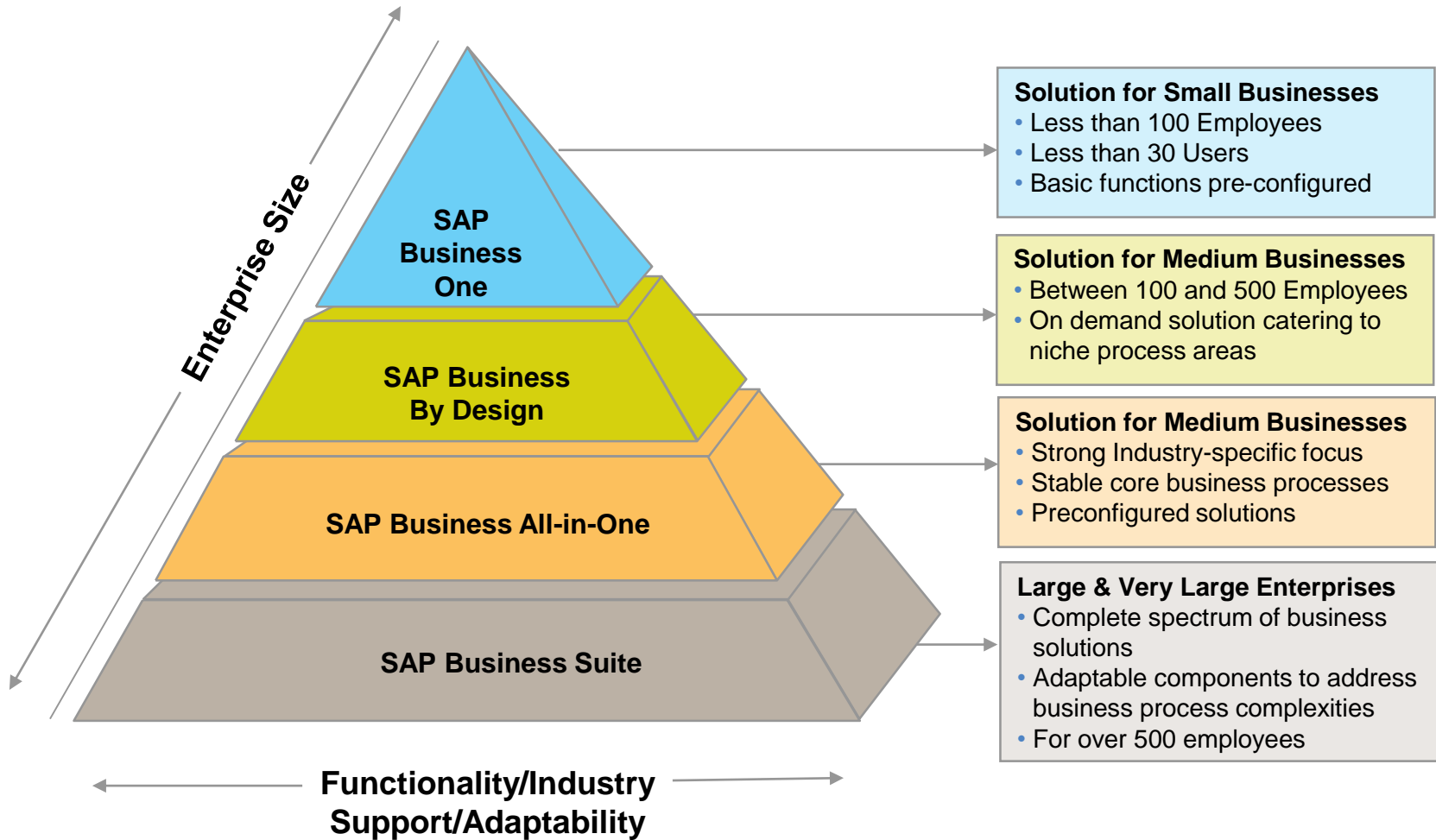
Computing  
Engines – Web  
Application  
Servers



Process  
Integration –  
ERP to ERP ,  
ERP to Non-  
ERP Integration

Information  
Integration -  
Business  
Analytics &  
Reporting ,  
Master Data  
Management

# SAP Offerings based on Company Size



# Evolution of SAP Releases

Part of SAP NetWeaver	Basis Functionality (SAP Basis/SAP Web AS/ SAP NetWeaver AS)	Business Functionality (-/Core)	Business Extension Set	Part of SAP ERP
7.1	7.10	-	-	-
7.0 (2004s) 2004 ('04)	7.00 6.40	6.0 5.0	6.00 5.00	6.0 (2005) 2004
(2003)	6.30 6.20 6.10	4.7 4.7 -	2.00 1.10	(2003) (2003)
	4.6D 4.6C 4.6B 4.5B 4.0B 3.1I	- 4.6C 4.6B 4.5B 4.0B 3.1I		

- SAP releases come in two flavours – An application flavour and basis(was) flavour.
- The SAP Application , otherwise called ECC 6.0 was earlier called mySAP ERP 2005 , and this is based on WAS 7.0
- The older release , ECC 5.0 was called mySAP ERP 2004 and was based on WAS 6.40
- The predecessor to ECC 5.0 , was called SAP Enterprise 4.7 , based on WAS 6.20 and 6.30. This was the first time SAP BASIS kernel came to be referred to as WAS. The JAVA Engine made its first appearance in this release.
- Earlier SAP releases were called R/3. This is starting from R/3 3.1i to 4.6c. The underlying BASIS kernel was versioned from 3.1i to 4.6D.All such releases were based purely on ABAP engines

# SAP BASIS Overview

## **What is SAP BASIS ?**

- The term “BASIS” is a reference to the underlying technical architecture of an SAP application. The term encompasses the server infrastructure , software and the server processes that run the SAP application.

## **Who are BASIS consultants ?**

- SAP consultants who design, build and manage the SAP environment are termed as BASIS consultants. They are the SAP Technical architects in the IT organization.

## **What is the scope of BASIS consultants in an IT organization ?**

- SAP consultants possess the skills required to administer and configure SAP specific settings in an IT landscape. They are part of a larger organization which may run a landscape consisting of several SAP and Non-SAP applications.

## **What are the pre-requisites for starting a career in SAP BASIS ?**

- Basic knowledge of operating system administration, network management and database administration.



# SAP BASIS Overview

## Hardware requirements to install SAP ECC 6.0

- **HDD** – 250GB + 45GB Hard Disk Space
- **RAM** – Minimum 4 GB of RAM — The more the capacity of RAM, the less time it takes for installation
- **CPU** – Intel Dual Core or Core 2 Duo Processor — If you have a 64-bit processor, you can go for ECC 6.0 EHP4 instead of ECC 6.0 SR2.
- CD Drive to copy the software

## Software requirements to install SAP ECC 6.0

- Windows server 2003 32-bit SP 2 or Windows Sever 2003 64-bit OS.
- Driver CDs
- Adobe Acrobat Reader for Installation Manual

**Note** – SAP ECC 6.0 ides SR2 installation will be completed approximately in 20 hours with the above configuration. You can download SAP ECC 6.0 free trial from SAP Market place.

# **Introduction to SAP Client Administration**

# SAP Client Concept Overview

- A client is used in SAP system for multiple login on single instance.
- You can create multiple clients on a single instance.
- It also provides data security wherein, one user with one client can't see the data of the other user with another client.
- In addition, there is no need to install the software for each and every user.

SAP system comes with the following three standard clients –

1. **000 Client** – This is called master client and is available when you install R/3 system.
2. **001 Client** – This client is a copy of 000 client including the test company. This client is used to create new clients normally.
3. **066 Client** – This is called SAP Early watch and is used for diagnostic scans and monitoring service in SAP system.

# **SAP Client Creation**

# Steps to create new client in SAP

- Step 1 – Start by using transaction code — SCC4
- Create New Client
- Step 2 – To create a new client, enter the below details after clicking on New Entries.
- View Clients
  1. Client number and name
  2. City
  3. Currency, Roles
- Step 3 – Enter your client-specific data and set permission for the clients as per your requirement and click on Save.
- New Entries
- Step 4 – Now, if you go to the Display Client list, Transaction SCC4 > Display > New client will be added.

# SAP Client Deletion

# Steps to create **delete** client in SAP

- Step 1 – Use transaction code — SCC5 as below. Go to SAP Easy Access and run the transaction.
- Client in SAP
- Step 2 – Select the client to be deleted. You can select > delete in background or start immediately. Table T000 contains all the client entries created using Transaction SCC4. You can also select to remove table entry for the client.
- Delete Client
- Step 3 – When you select start immediately, you see the following window.
- Click COninue
- Step 4 – Click on Continue to complete the deletion.

# SAP User Types



# Types of Users in SAP

1. **Dialog user** – This user is used for interactive system access from GUI.
2. **System user** – This user is used for background processing, communication within a system.
3. **Communication user** – This user is used for external RFC calls.
4. **Service user** – This user is created for a larger and anonymous group of users.
5. **Reference user** – It is not possible to log on to the system with this user type. User type for general, non-person related users that allows the assignment of additional authorizations.

# **Login Attempts Administration**

# Steps to set number of login attempts

- Step 1 – Use transaction code — RZ11.
  - RZ11
  - Step 2 – Enter the parameter name and click on Display. To edit a parameter, click on Edit.
  - Step 3 – To set the number of failed attempts, put parameter name — `login/fails_to_session_end`. You can put any parameter name.
  - Profile Parameters
  - Step 4 – To check the current policy, click on Display.
1. **`login/fails_to_session_end`** – This parameter defines the number of times that a user can enter an incorrect password before the system ends the logon attempt. The parameter should be set lower than the value of parameter.
  1. **`login/fails_to_user_lock`** – This parameter is used to define the number of times that a user can enter an incorrect password before the system locks the current user account. The default value is 12 and can be set to any value between 1 and 99 inclusive.

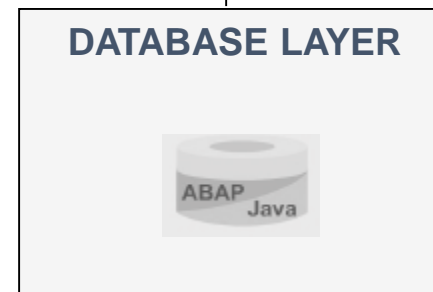
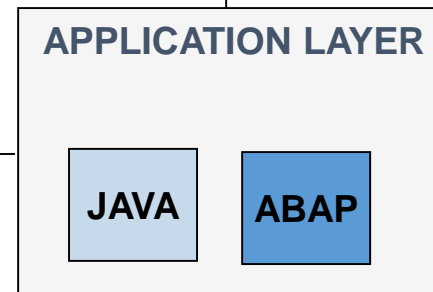
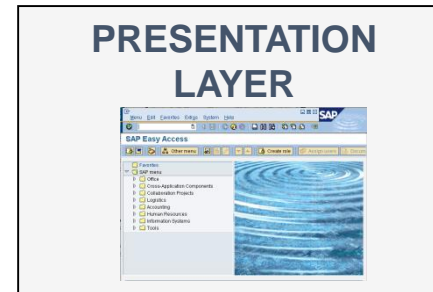
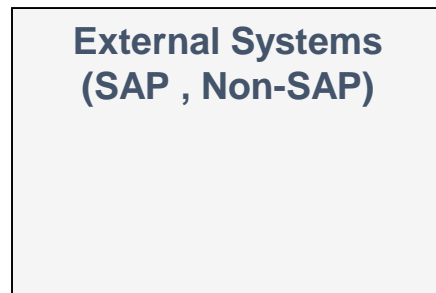
# **Introduction to Netweaver Application Server**

# SAP Netweaver Application Server

## Architecture View of SAP Netweaver Application Server

### SAP Netweaver Application Server Features

- Multi Level Architecture
- Runtime environment for both ABAP and JAVA Programs
- High Scalability



- Built on a wide range of Operating systems and Database Platforms
- Choice of Presentation layer tools – SAPGUI , WEBGUI
- Development IDEs for Java and ABAP
- Standard protocols supported Ex: HTTP , RFC
- Security functions follow industry standards

# **SAP Architecture Fundamentals**

# SAP Architecture Fundamentals

- ABAP & JAVA Runtimes
- Client Server Architecture
- Concept of SAP Instances
- AS ABAP Processes & Architecture
- Request Processing in AS ABAP

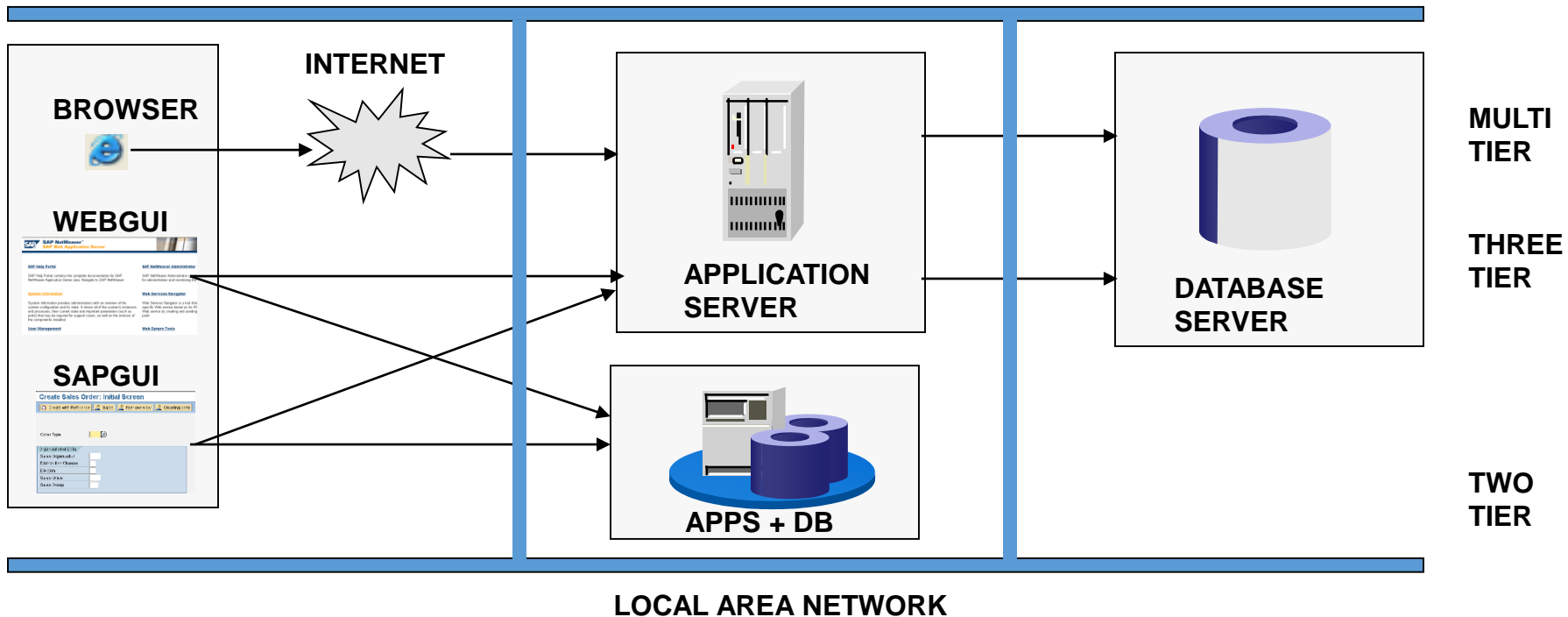
# ABAP & Java Runtimes

- SAP systems provide the basis for building applications that implement business processes
- The SAP applications are not dependent on the type of Operating systems and Databases to a great extent
- Applications can be built in either ABAP or JAVA languages
- To run ABAP programs , the Netweaver application server provides a ABAP Runtime environment
- To extend SAP applications so that they become highly interoperable with external and internet web-based applications , the JAVA runtime was introduced in the SAP Netweaver environment. The JAVA runtime is based on J2EE standards
- IMPORTANT NOTE : The ABAP and JAVA runtimes are also called as ABAP and JAVA engines



# Client Server Architecture

- The client is a device on a network , which transmits requests for data processing. The client in the SAP architecture can be either the SAPGUI running on Windows , SAPGUI for JAVA for other OS' or WEBGUI which can be invoked from any common browser
- The server is the Netweaver application server which processes client requests in the ABAP or JAVA engine
- Communication happens over a dedicated network infrastructure (LAN) or through Wireless LAN (WLAN)
- In SAP , there are several types of multi-level architectural scenarios possible :



# Concept of SAP Instance

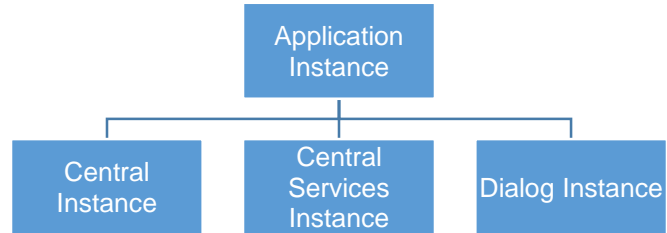
- An SAP Instance is the basic building block of an SAP system
- An SAP system can comprise of one or more SAP instances
- It is an administrative unit that combines multiple components to provide one or more services
- An SAP system comprises of two parts : Application Instance and Database Instance
- When the application instance and database instance reside on the same hardware , it is then known as a “SINGLE INSTANCE”
- When the application instance and database instance do not share the same hardware resources , then the instance is known as a “DISTRIBUTED INSTANCE”
- An SAP Instance is uniquely identified with a system ID , known as SID and an instance number
- Each SAP instance can be distributed over multiple hardware units. These units can be separate physical machines , logical/physical partitions within the same machine.



**The Database Instance ID , also called DBSID is normally the same as the SAP instance ID , or SID. The SID is always 3 characters long and can contain alphanumerals , but it must start with an alphabet. The Instance Number is always a 2 digit number , and can be any combination of digits between 0 and 9.**

# Concept of SAP Instance

An SAP Application Instance can be broken down to the following types :



Type of Application Server	Instance Name	Name of Processes
ABAP Application Server	Central Instance	Enqueue Server , Gateway Process
	Central Services Instance	Message Server
	Dialog Instance	ABAP Work Processes
JAVA Application Server	Central Instance	Software Deployment Manager(SDM) , Dispatcher
	Central Services Instance	Message Server
	Dialog Instance	JAVA Server Processes

 Each SAP system can have only 1 Central Instance , 1 Central Services Instance and only 1 Database instance. It can have any number of additional dialog instances

# Application Instance

These are the different components:

**Internal Communication Manager** – This is used to process both client and server web requests. It supports protocol – HTTP, HTTPS, SMTP.

**Dispatcher** – This is used to distribute the user request to different work processes. If all the work processes are busy, requests are stored in the dispatcher queue.

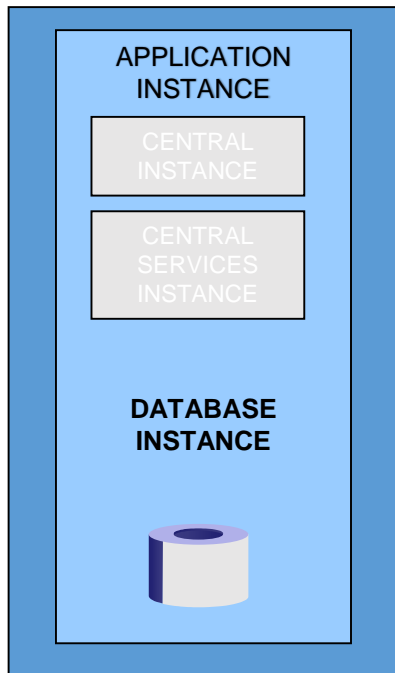
**Work Processes** – These are used to execute Java or ABAP programs.

**Message Server** – This is used for message communication and also balances the load in SAP system.

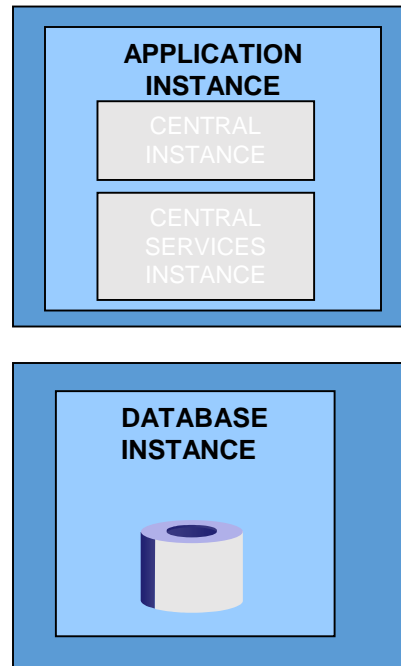


# Distribution of SAP Instances in a SAP system

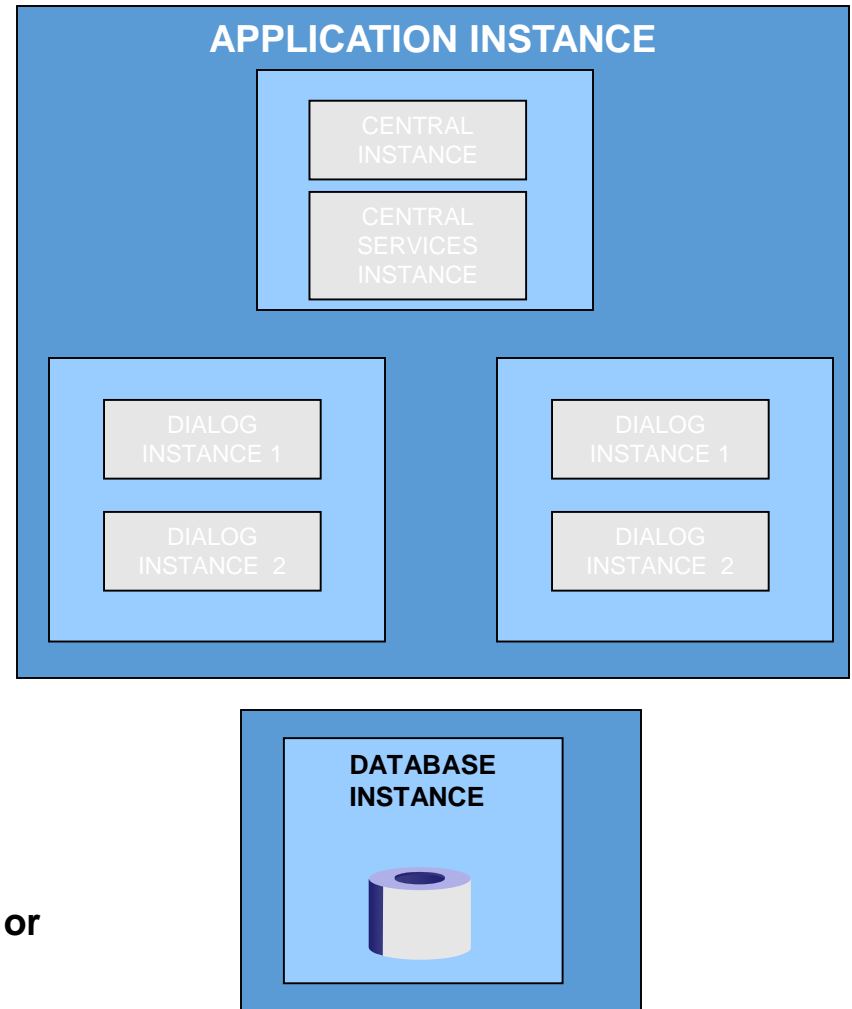
## Single Instance



## Distributed Instance



## Distributed Instance with multiple dialog instances



**Note :** Each Box represents a physical machine or a partition within the same hardware

# **SAP Basis Introduction**

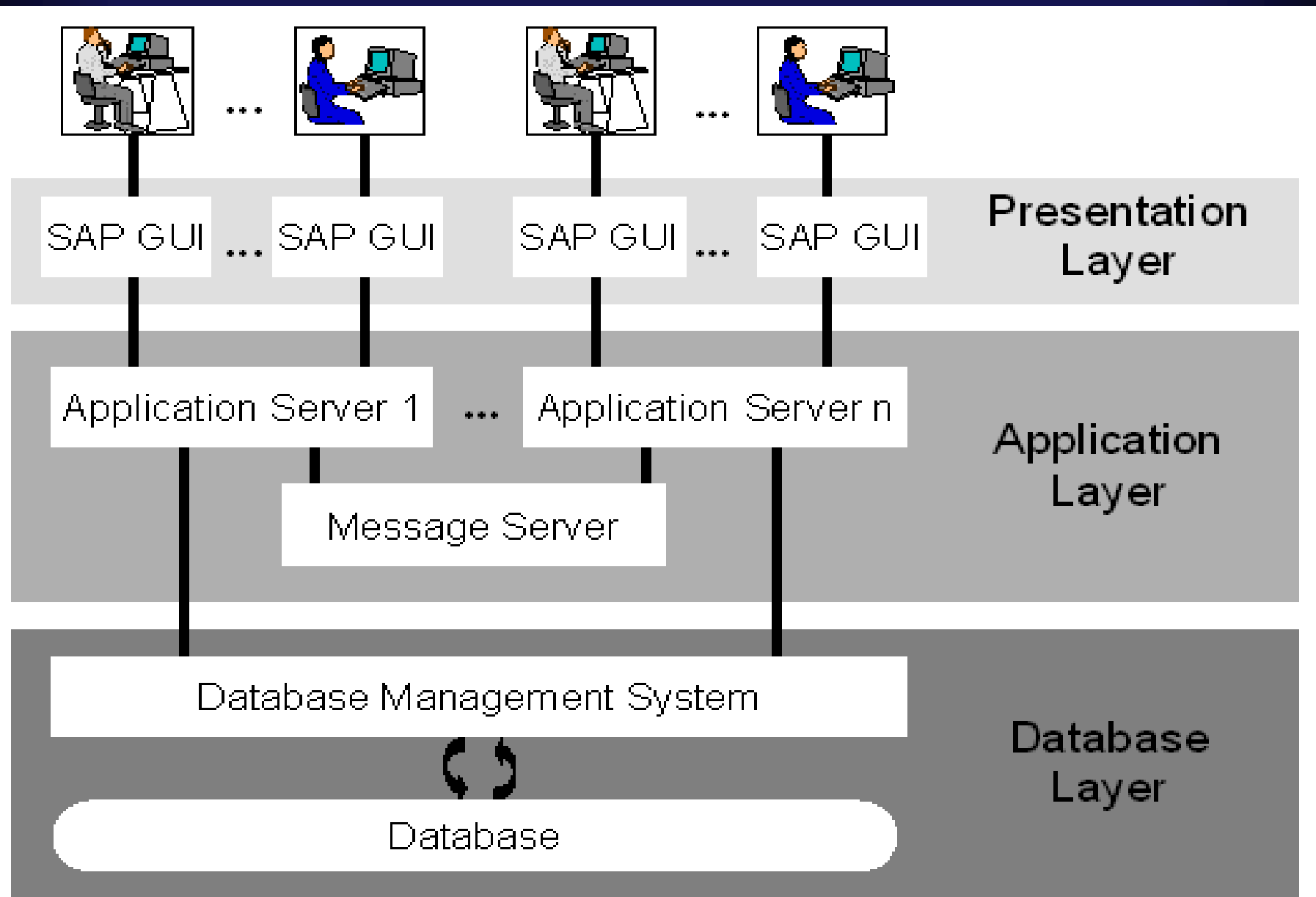
**by Pavan Golesar**

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# Learning Objectives

- **What the Basis system is**
- **How does SAP handle a transaction request**
- **Differentiating between the various work processes**
- **Understanding the basic functions of the Basis Module**

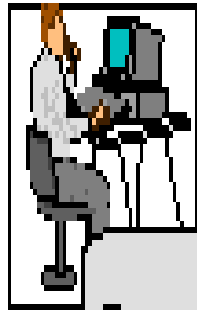
# The Software-Oriented View of R/3





# The SAP R/3 System Architecture

- **Implications for Application Programming**
  - Separate presentation and application layers implies that when you run an application program that requires user interaction, control of the program is continually passed backwards and forwards between layers.
  - When a screen is ready for user input, the **presentation layer is active**, and **the application server is inactive** with regard to that particular program.
  - As a consequence, the program logic in an application program that occurs between two screens is known as a **DIALOG STEP**.



Scrn 1

Scrn 2

Scrn 3

SAP GUI

inactive

SAP GUI

Inactive

SAP GUI

Presentation Layer:  
User  
interaction

Inactive

Dialog  
step

Inactive

Dialog  
step

Inactive

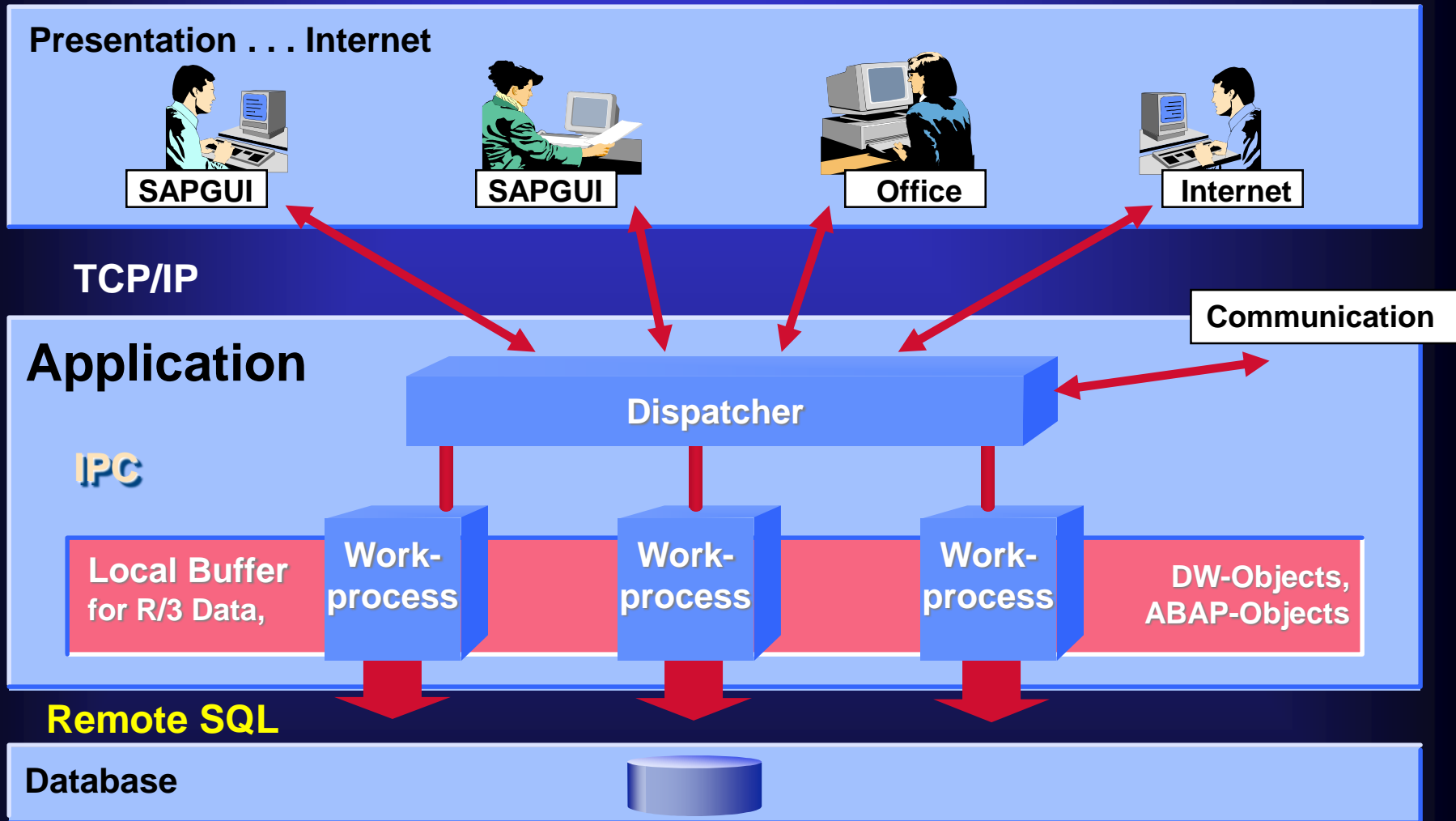
Application Layer  
System processes  
dialog steps

# The SAP R/3 System Architecture

- **Application Layer (cont.)**
  - **Application Server**
    - R/3 programs run on application servers
    - The **APPLICATION SERVER** communicate with the presentation components, the database, and also with each other, using a **MESSAGE SERVER**.
    - **Main components:**
      - **Work Processes (Dialog, Update, Enqueue, Batch, Spool)**
      - **Dispatcher**
      - **Gateway**
      - **Message Server**

**What happens when I send a  
request to SAP?**

# Application Server



# Dispatcher

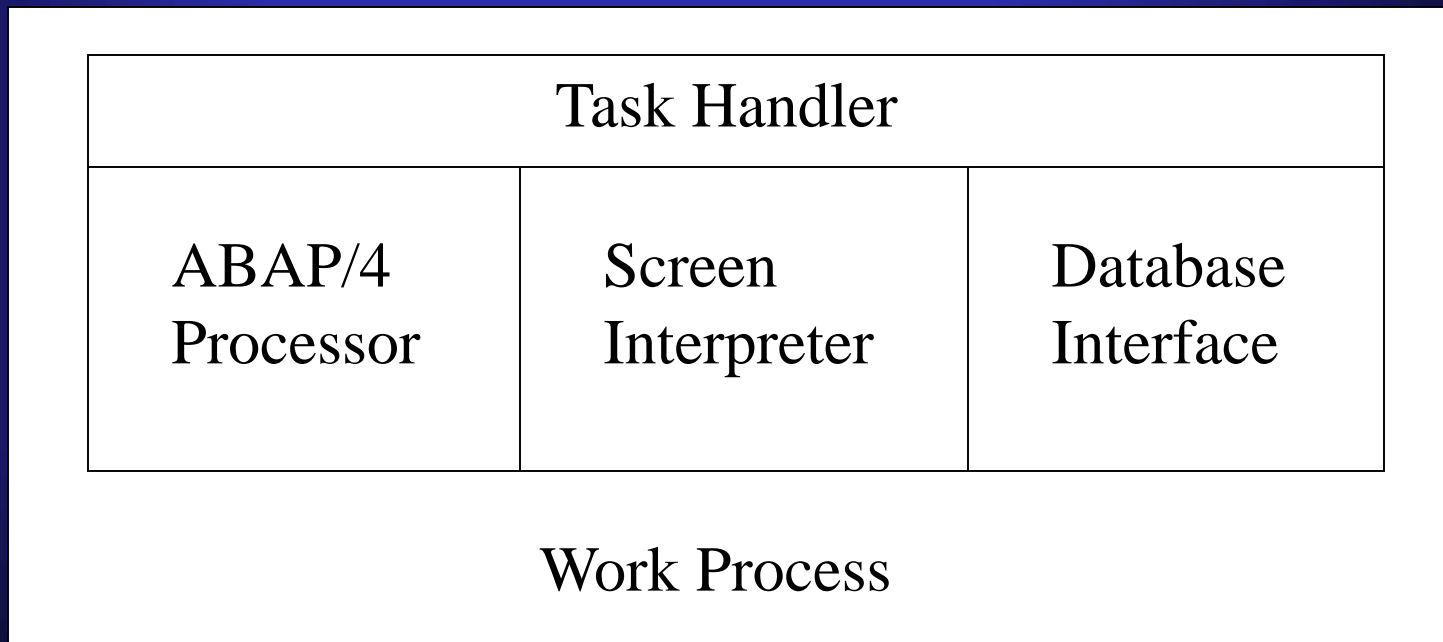
- **Program which manages resources of the R/3 applications**
- **Receives requests from user and passes them to the corresponding work processes**
- **Only one dispatcher per application server**

# Dispatcher Tasks

- **Balances the workload between the processes**
- **Buffer management in main memory**
- **Connection with the presentation level**
- **Organization of the communication processes**

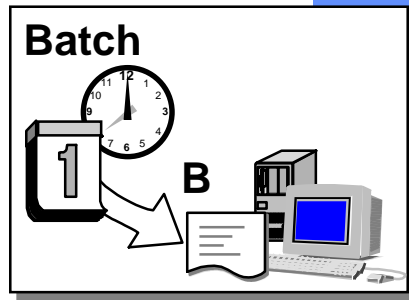
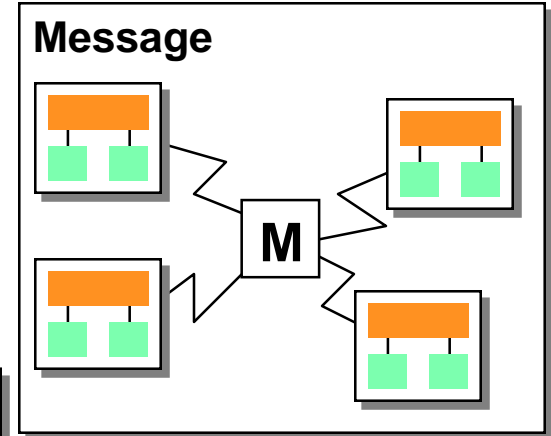
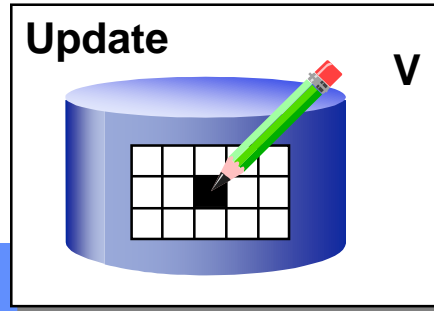
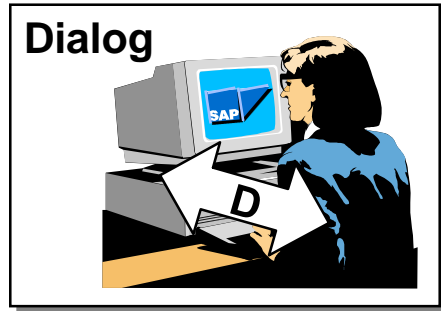
# Work Process

- **Responsible for executing R/3 application tasks**

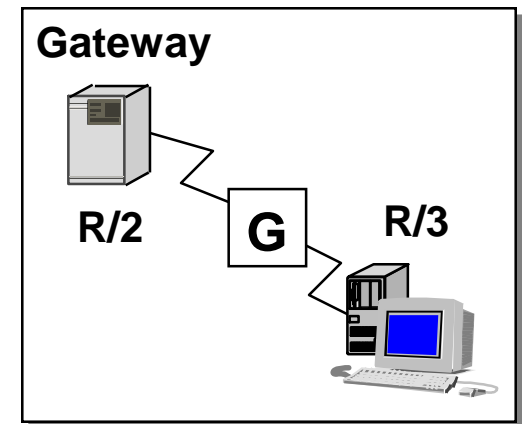
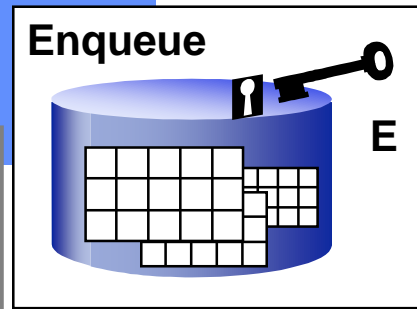
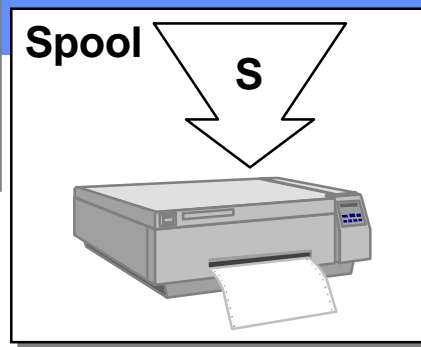




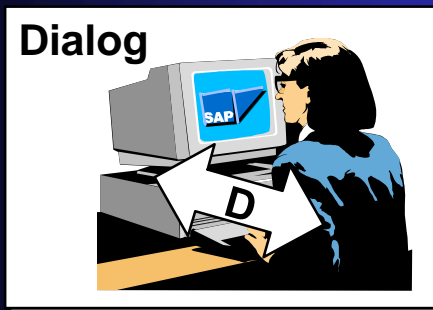
# Different Kind of Work Processes for different Tasks



**SAP Dispatcher**



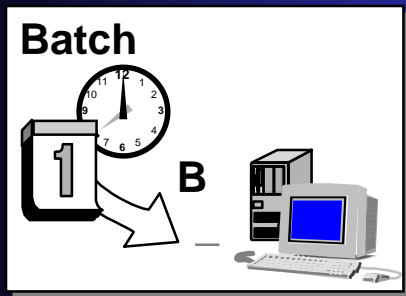
# Dialog Work Processes



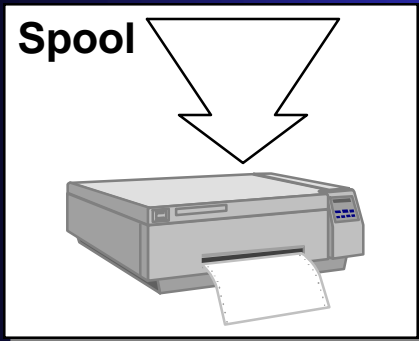
- **Responsible for the interactive tasks of the R/3 system**
- **Dialog work processes execute only one dialog step at a time and are immediately freed for the next user request**
- **Constantly switching between users**

# Background Work Processes

- Responsible for executing ABAP programs submitted for background execution
- Batch jobs schedule the sequence of program execution
- Used for running long and time consuming programs

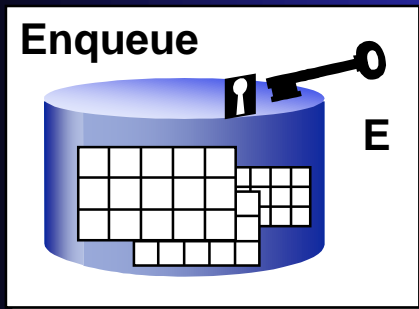


# Spool Work Processes



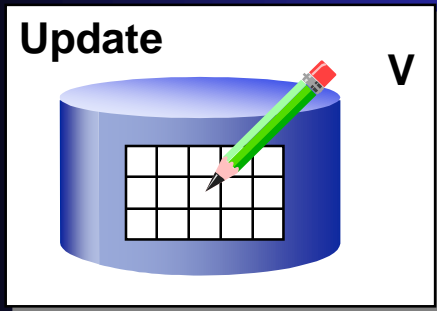
- **Responsible for formatting the data for printing and passing it to the host spool system**
- **Only one spool work process allowed per server**

# Enqueue Work Processes



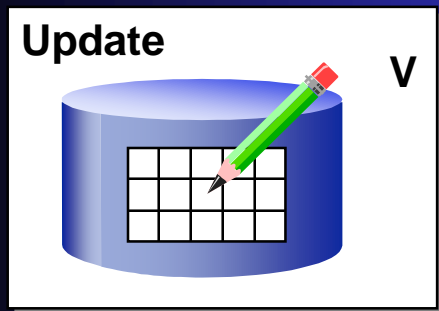
- **Responsible for the lock management system**
- **Synchronizes database access for the multiple application servers and work processes**
- **Only one enqueue process per R/3 system to ensure data integrity**

# Update Work Processes



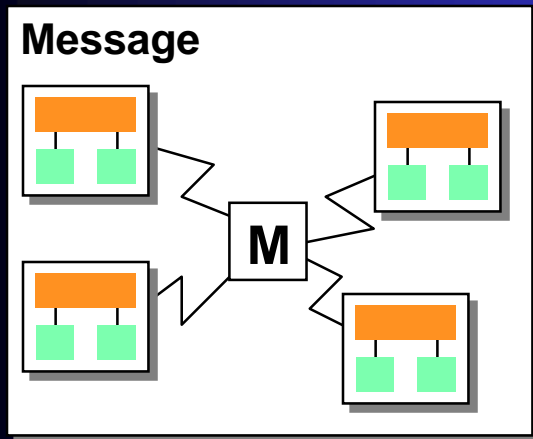
- **Responsible for making database changes requested by dialog and background processes**
- **For better performance, this process should be on the database server**

# V1 vs. V2 Update Processes



- **Time-critical processes are inside V1 and less critical ones within V2**
- **Error situations in**
  - **V1 : changes rolled back and V2 components not executed**
  - **V2 : only changes of V2 components rolled back**

# Message Server

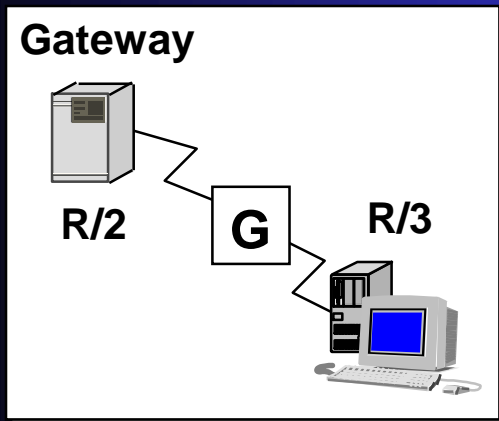


- Used by different application servers to exchange data and internal messages
- Routes messages, such as update or batch job starts, between application servers
- One message server per system



# Gateway Server

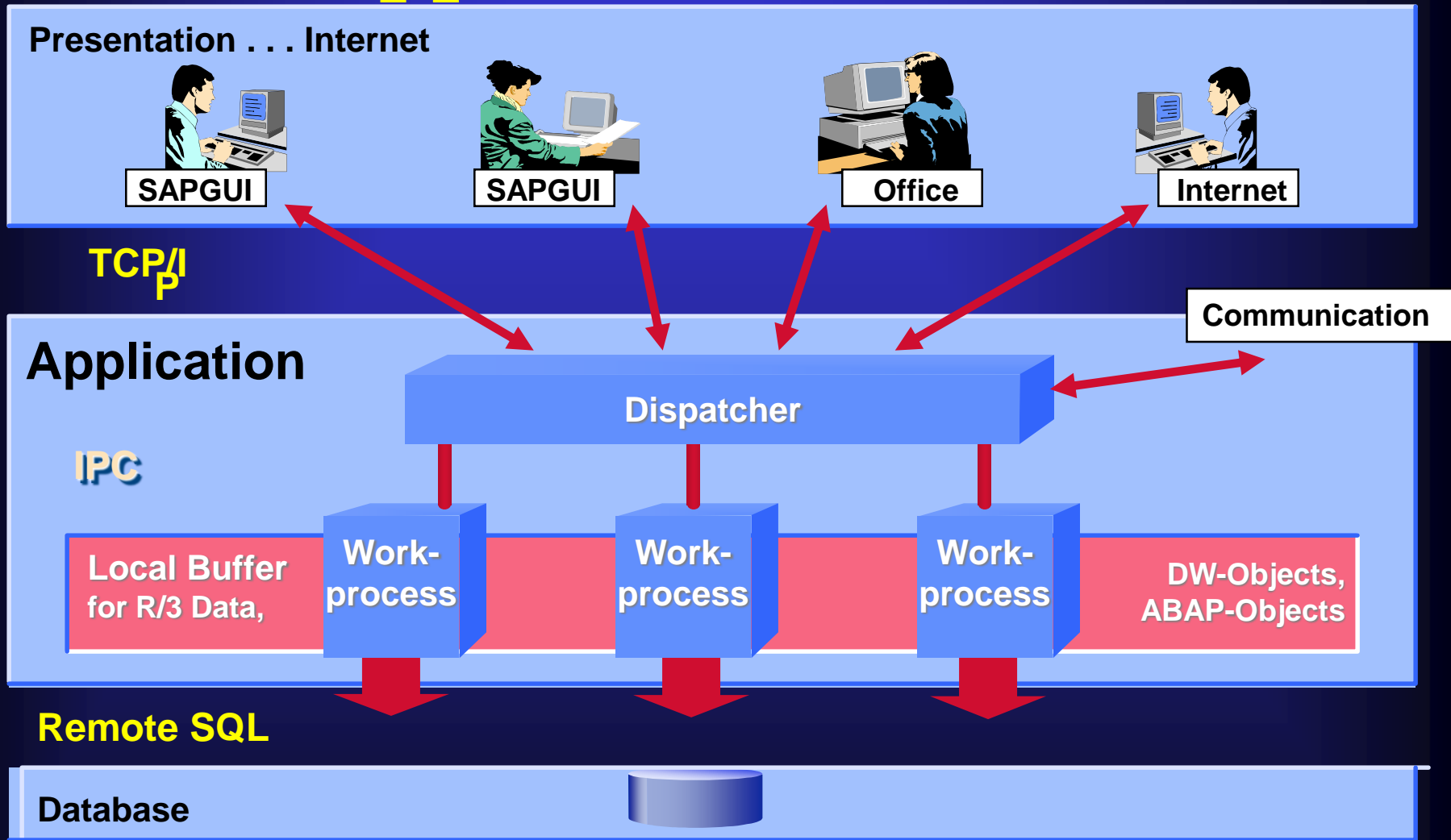
- **Allows communication between R/3, R/2, and external applications**
- **Exchanges large amounts of information between application servers**
- **Gateway can reside on any of the connected systems**



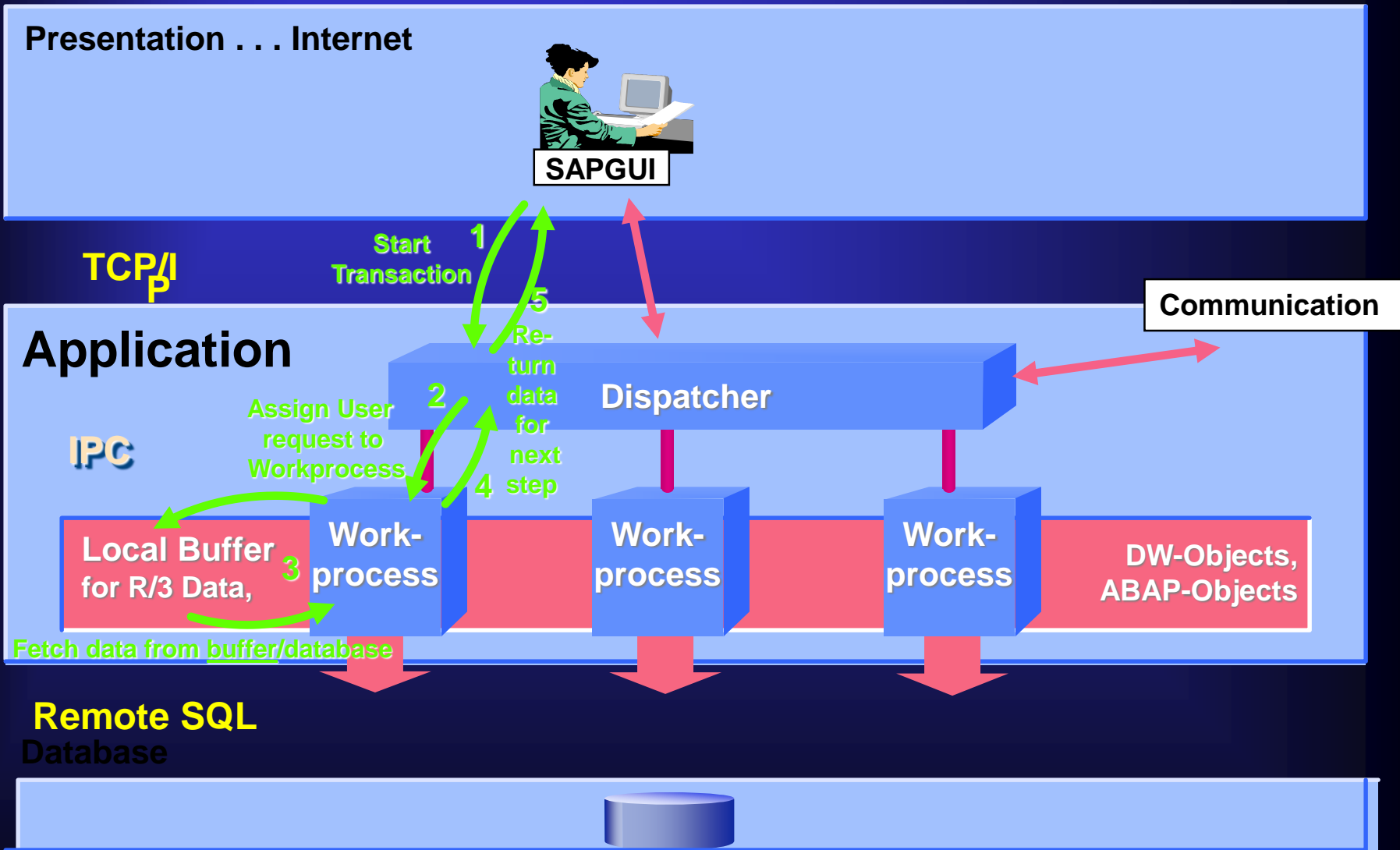
# Work Processes

- **Number of work processes can only be changed after restarting the system**
- **Should have at least two dialog work processes**
- **Need to have at least one V1 and V2 processes**
- **Number of spool processes cannot be changed**

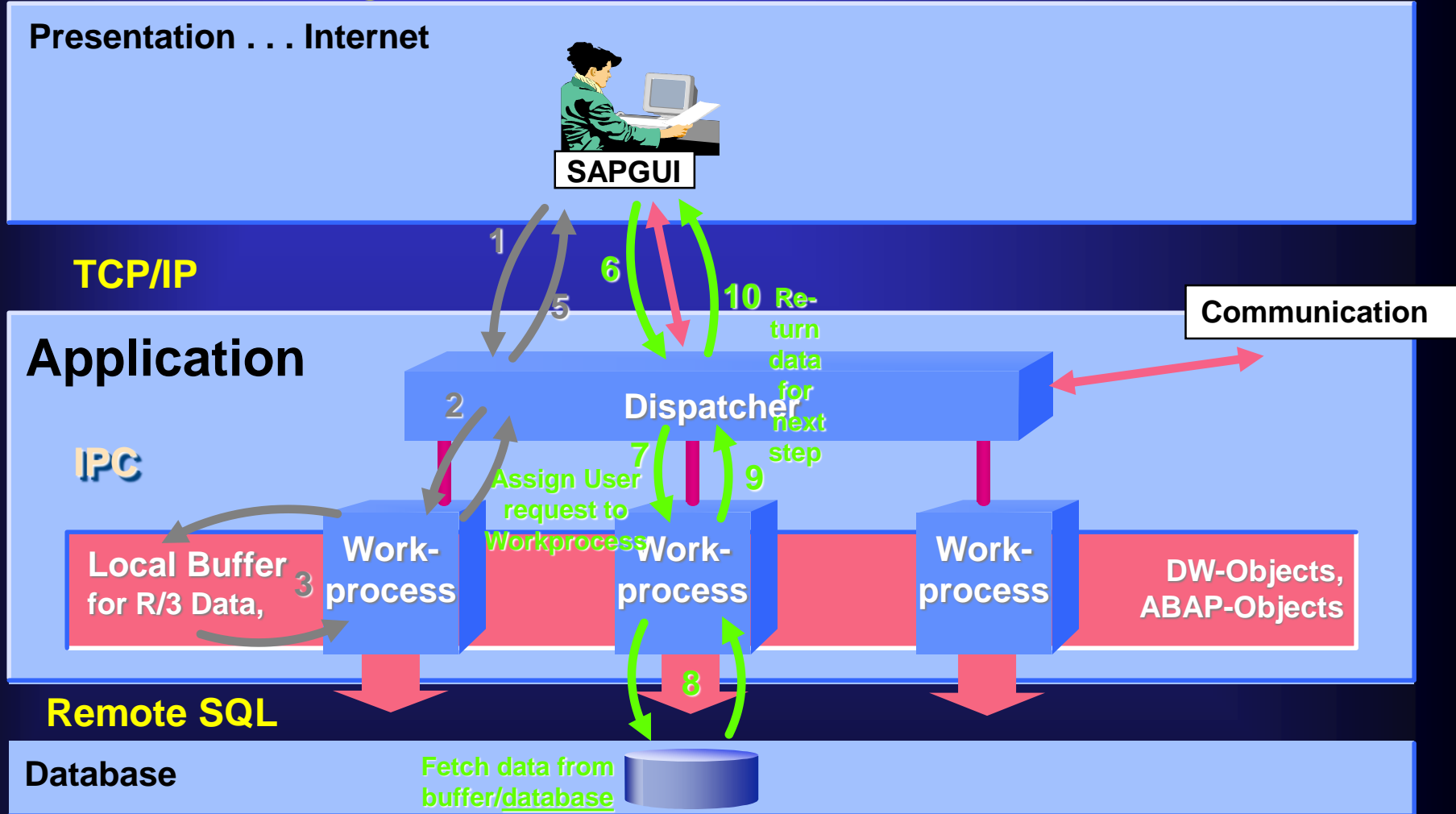
# Application Server



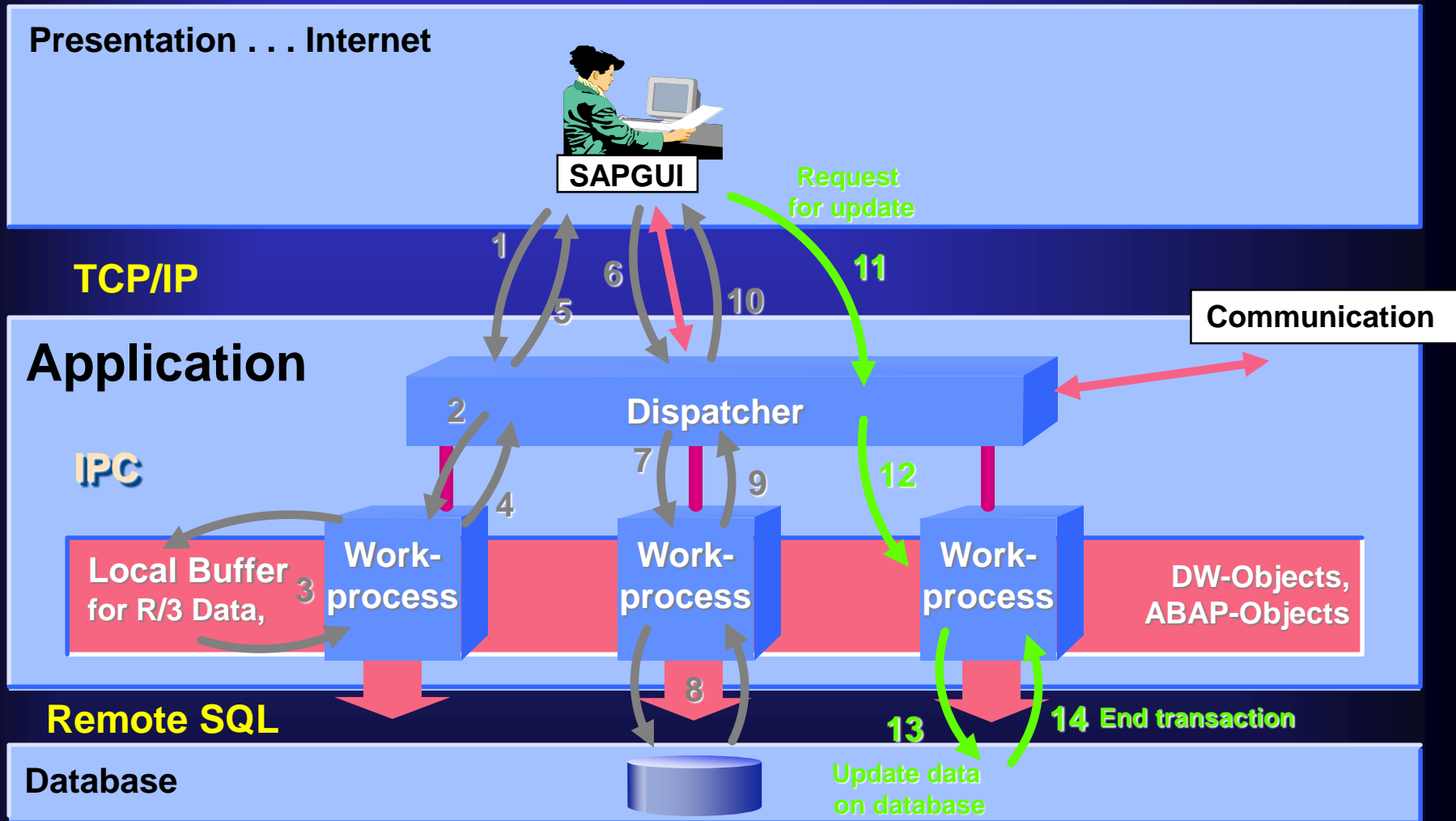
# Processing of a SAP Transaction (1)



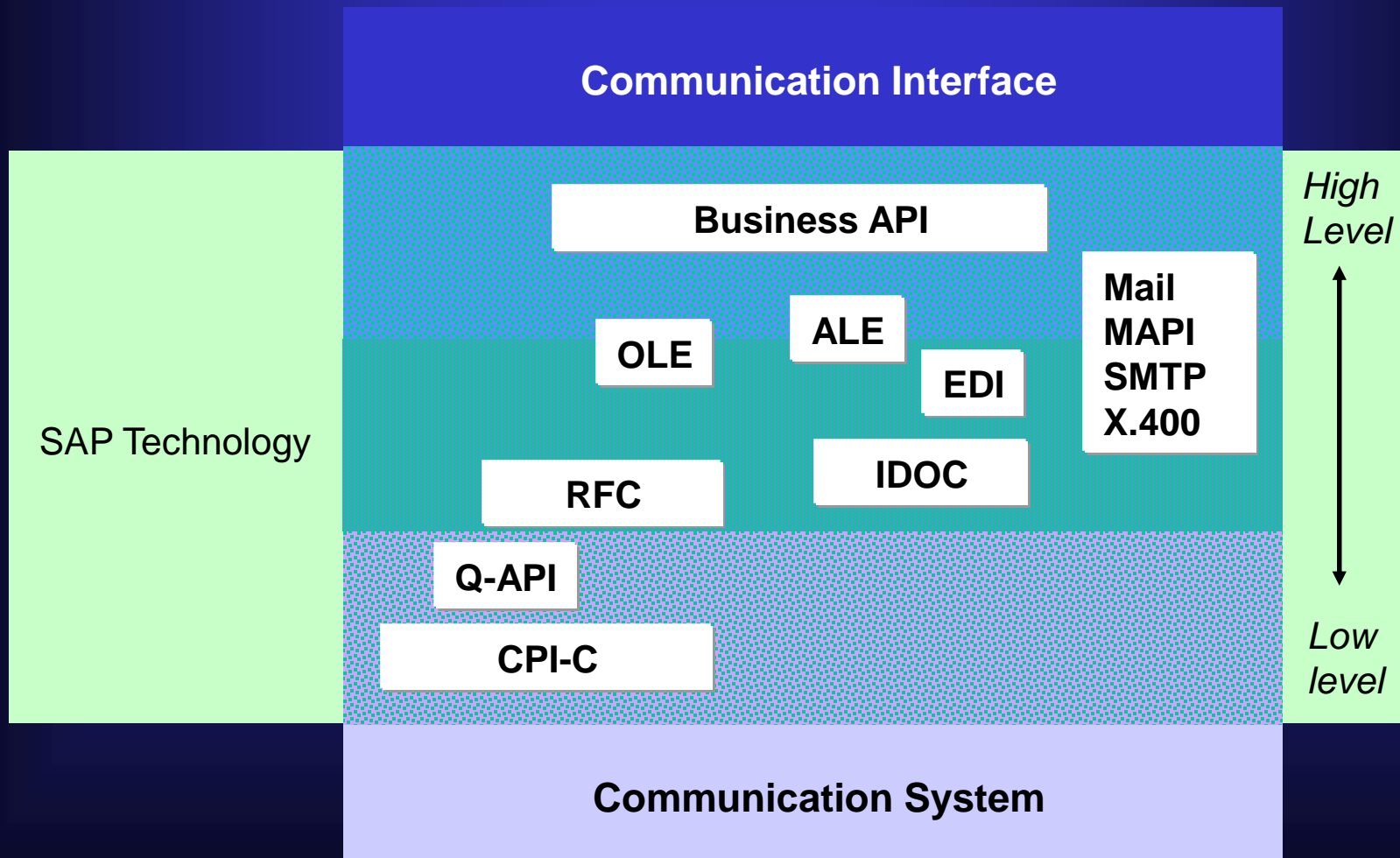
# Processing of a SAP Transaction (2)



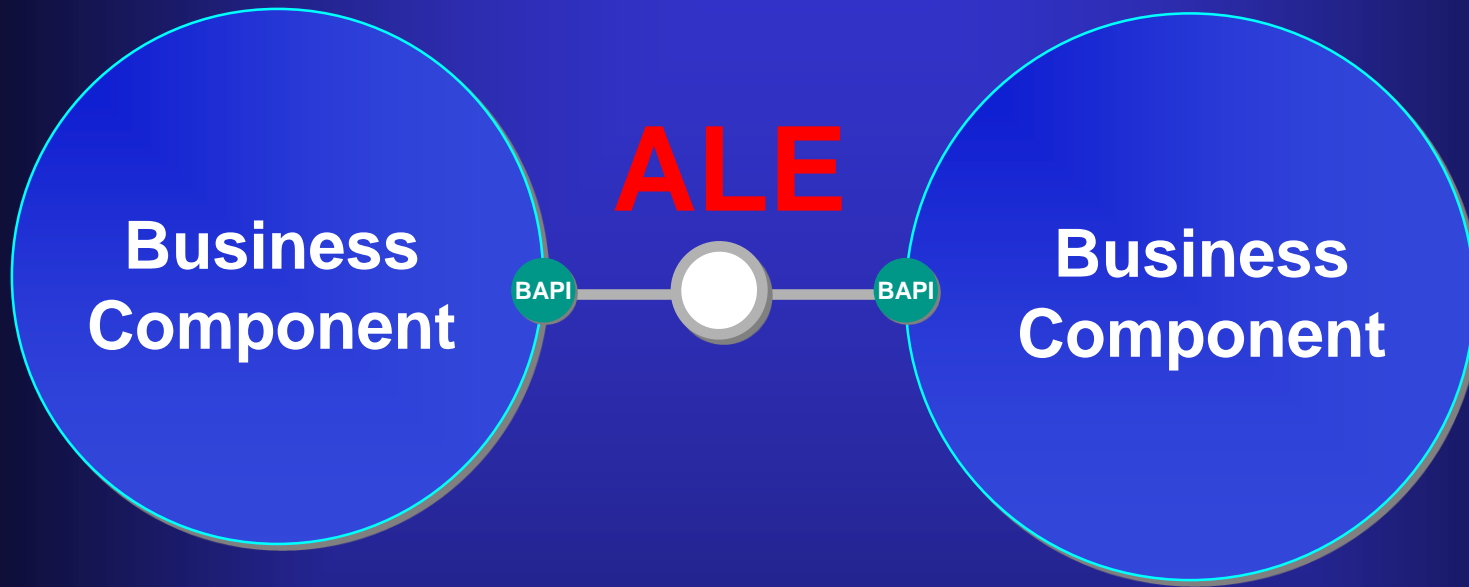
# Processing of a SAP Transaction (3)



# SAP Communication Interfaces



# Business Framework



- **Business Component** - contains business functionality
- **BAPI** - interface between the components
- **ALE** - integration of components



# **Business API (BAPI)**

- **Defined method of a business object**
- **Standardized methods allow customers to integrate their software with R/3**
- **Object-oriented in nature**
- **BAPIs from all development platforms that support the SAP Remote Function Call (RFC) protocol**

# Other Interfaces

- Application Link Enabled (ALE) - Interface that links different SAP systems and external application systems
  - Transport special data structures known as IDOCS (Intermediate Documents)
- Object Linking and Enabled (OLE) - enables desktop users to access SAP data from many OLE client programs

# Basic Functions of Basis

# Basis Functions

- **Hardware and Database Administration**
- **User and Security Administration**
- **Client Maintenance**
- **Correction and Transport System (CTS)**
- **Data Dictionary**
- **Online Service System (OSS)**
- **Performance Monitoring and Tuning**

# Hardware and Database Administration

- **Hardware upgrades - adding memory or servers**
- **Database backup and recovery**
- **Database optimization**
- **Disaster Recovery**

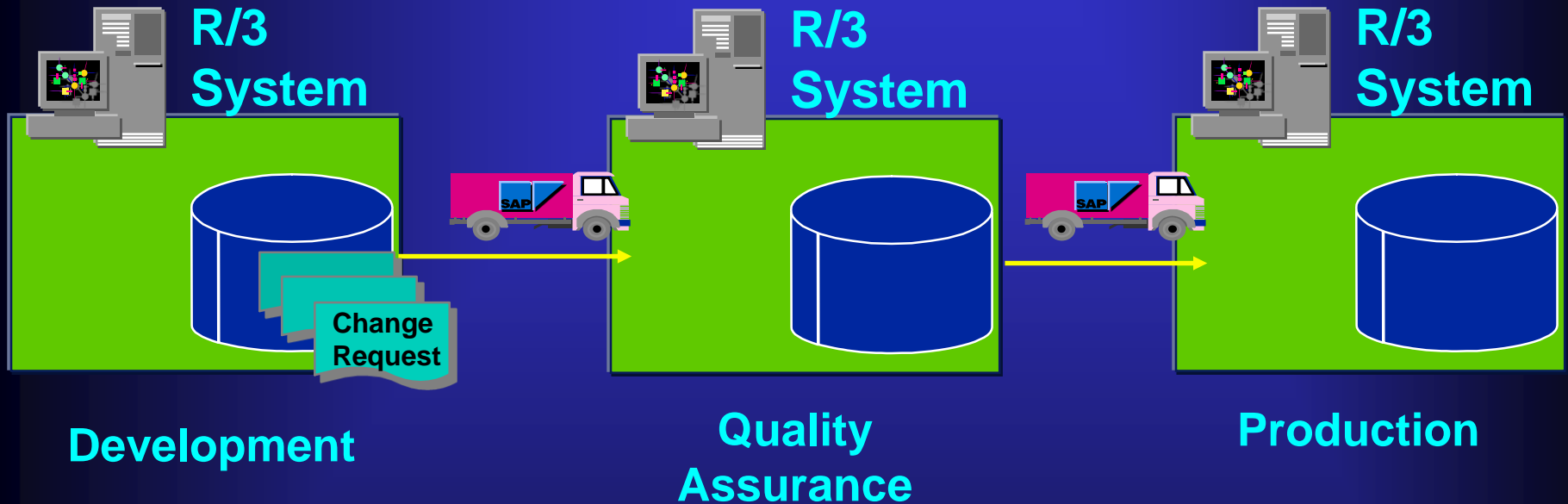
# User Administration

- **Create users and assign profiles**
- **Modify, lock and unlock users**
- **Develop authorizations and profiles**

# Client Maintenance

- **Create clients**
- **Copy and refresh clients**
- **Client imports and exports**
- **Delete and remove clients**
- **Modify change options**

# Correction and Transport System



**Moving changes from one R/3 system to another**



# Online Service System (OSS)

- **OSS is a set of SAP's online services such as bug fixes and useful implementation information**
- **OSS Notes**
- **Hotpacks**
- **Remote Connections**
- **Send questions to SAP**
- **ABAP registration**

# Performance Monitoring and Tuning

- Check database usage and storage capabilities
- Dialog response time
- Investigate ABAP short dumps
- Optimize performance characteristics

# References

- [SAP Help.com](http://SAP Help.com)
- [WIKI.SAP.com](http://WIKI.SAP.com)
- [www.abaper.weebly.com](http://www.abaper.weebly.com)

# **SAP Work Processes in Detail**

## **By Pavan Golesar**

**[www.abaper.weebly.com](http://www.abaper.weebly.com)**

# AS ABAP Processes

The table shows the different types of Processes in AS ABAP Environment

Process Name	Description
Dispatcher Work Process	There is 1 dispatcher work process per Application Instance and per each Dialog Instance.If there is 1 Central Instance and 2 Dialog instances in an SAP system , there will be 3 dispatchers. The role of the dispatcher is to distribute incoming requests to the ABAP worker threads.
Dialog Work Process (D)	There are a minimum of 2 Dialog work processes required per dispatcher that need to be configured per instance.This work process executes the transactions as required and communicates with the database instance processes
Background Work Process (B)	Background work processes execute programs that run without interacting with the user. At least two background work processes for each SAP system are required.More than one background work process for each dispatcher can be configured.
Enqueue Work Process (E)	Only 1 enqueue process exists in each SAP system. This process ensures that updates are serialized with the help of a lock table.
Update Work Process (V)	Minimum 1 Update process is required , and more than 1 process per dispatcher is allowed. This process takes care of processing update requests.
Spool Work Process (S)	Minimum 1 spool process is required and more than 1 process per dispatcher is allowed. This process passes sequential data to output devices such as printers.

# AS ABAP Processes

The table shows the different types of Processes in AS ABAP Environment (Contd.)

Process Name	Description
Message Server (M)	Only 1 Message server exists in the SAP system and is installed on the Central Services Instance. It is responsible for communication between the different dispatchers of each SAP instance within the same SAP system.
Gateway (G)	There is exactly 1 Gateway Per Dispatcher in a SAP system. The gateway is meant to allow communication between different SAP systems
Internet Communication Manager	There is only 1 ICM per SAP system. The ICM receives requests for HTTP protocol and forwards it to the ABAP dispatches for further processing

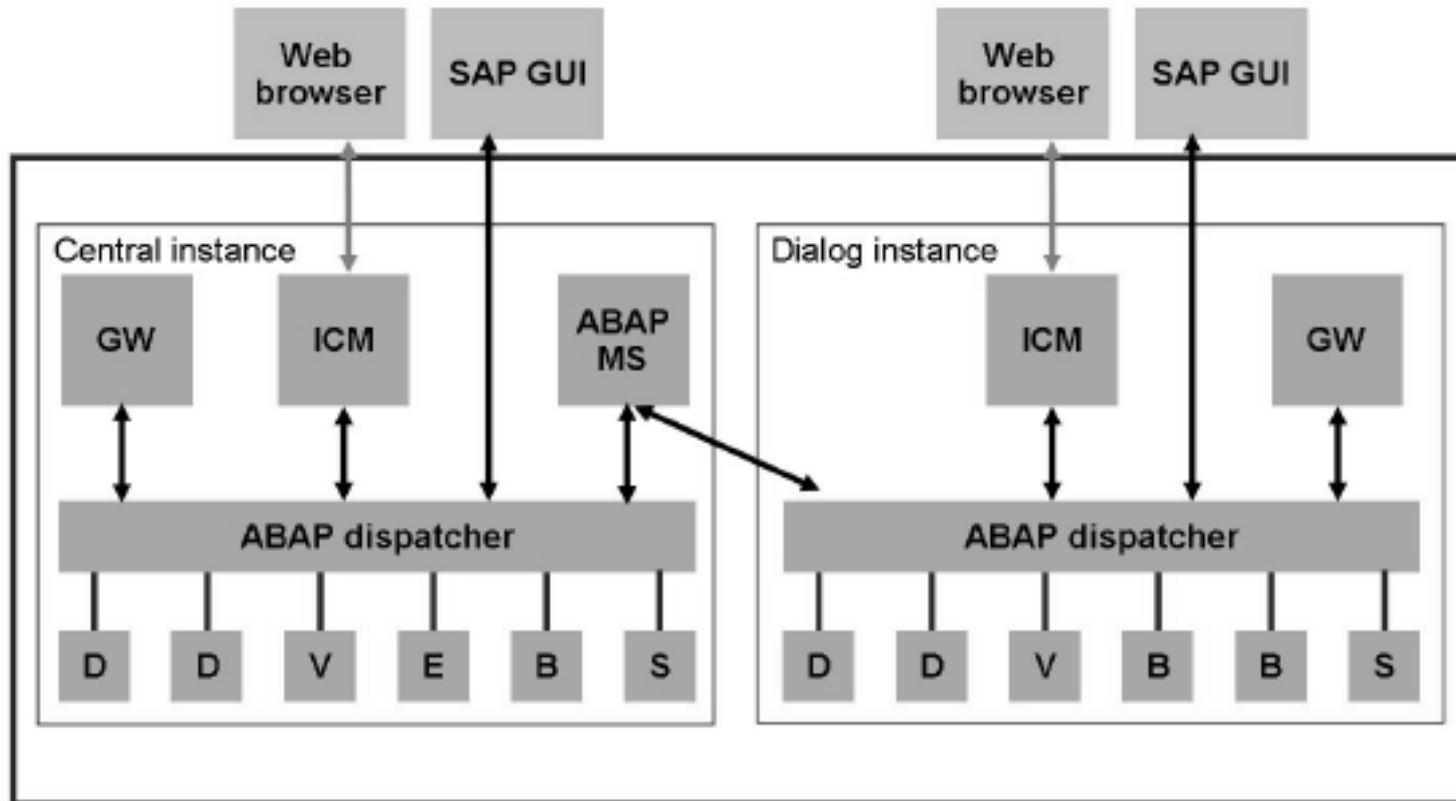


**SAP uses the acronym DVEBMGSxx , where xx is the instance number to denote an SAP instance within the SAP system.**

**Example : If an SAP system comprises of 1 Central instance with number 01 , and 2 Dialog Instances , with number 02 and 03 , then the SAP system is said to be comprised of DVEBMGS01 , DVEBMGS02 and DVEBMGS03 instances**

# AS ABAP Architecture

- Architecture showing the interaction between ABAP processes in a SAP system with a Central Instance and 1 Dialog Instance



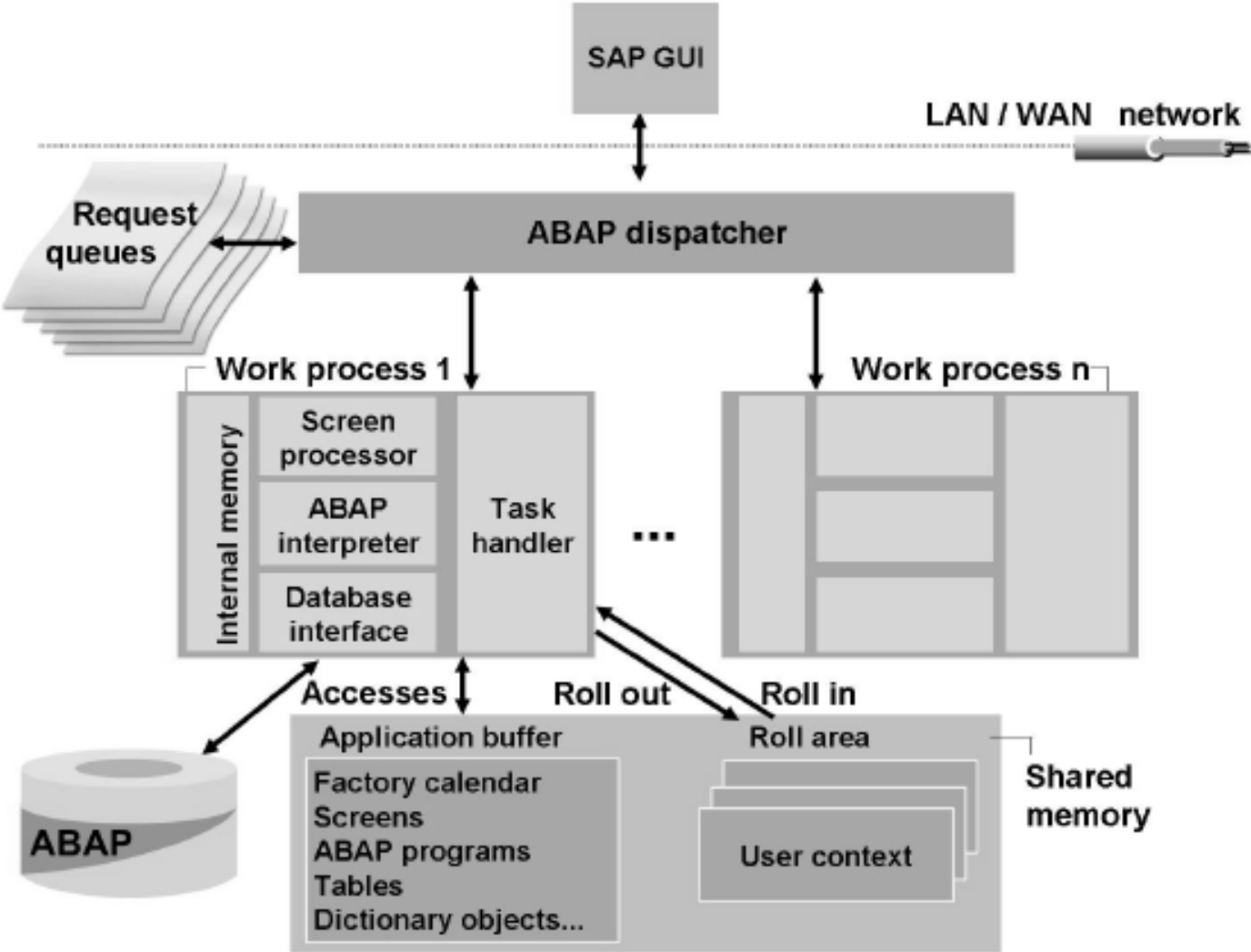
- Note that there is no enqueue process within the dialog instance.

# AS ABAP Processes

- The AS ABAP Message Server process is for internal communication. For example initiating updates , requesting and removing locks , triggering background requests etc.
- It also keeps track of which instance is available by periodically pinging each instance
- There is 1 dispatcher per instance. In a system with multiple instances , the dispatchers communicate with each other through the message server
- All requests received through HTTP are handled by the ICM. Each ICM then forwards the request to the dispatcher within its own instance.
- The gateway process accepts requests that follow the RFC protocol. Typically such requests are sent from either other SAP systems or from applications running outside the SAP system.

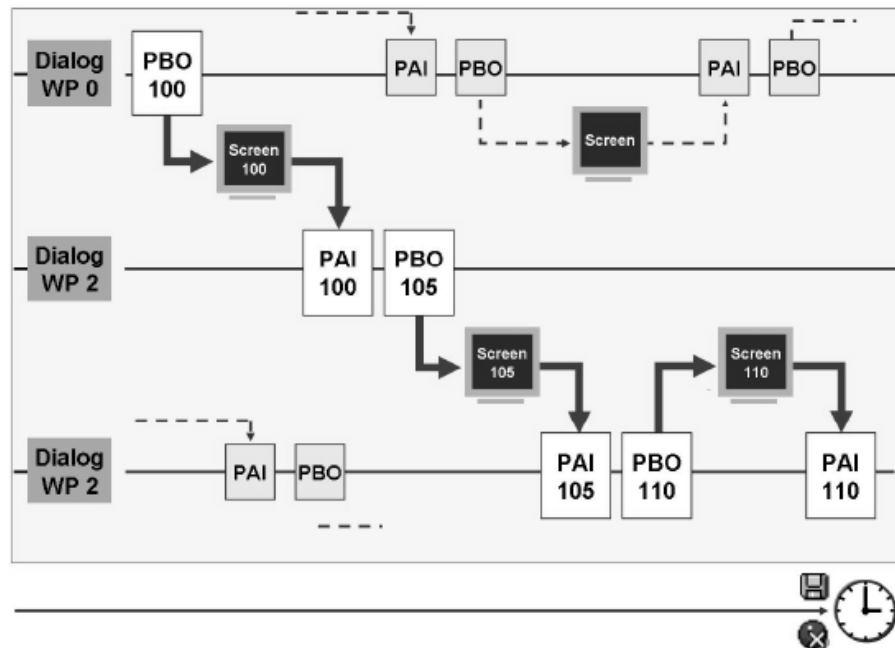


# Processing a user request



# Processing a Dialog Request

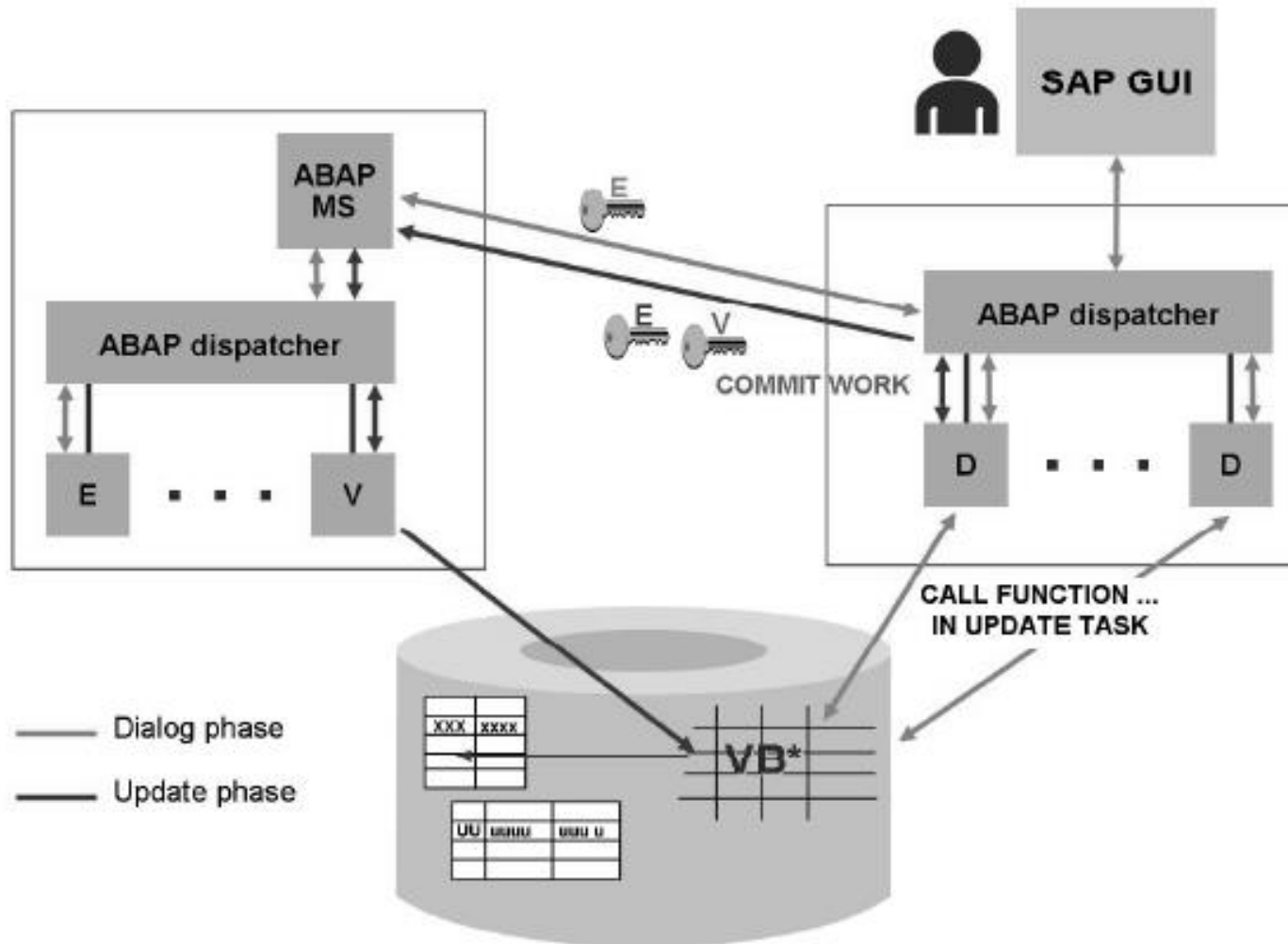
- Each SAP program has a number of dialog steps , which are steps that have input parameters, processing functions and output parameters. Each step is manifested in the form of screen changes from a user's point of view.
- Each dialog step can have multiple screens to process. Each step may be executed by any of the available dialog work processes. This is known as Work Process Multiplexing.
- A single dialog process therefore may sequentially process dialog steps for any user and any program during its activity cycle.



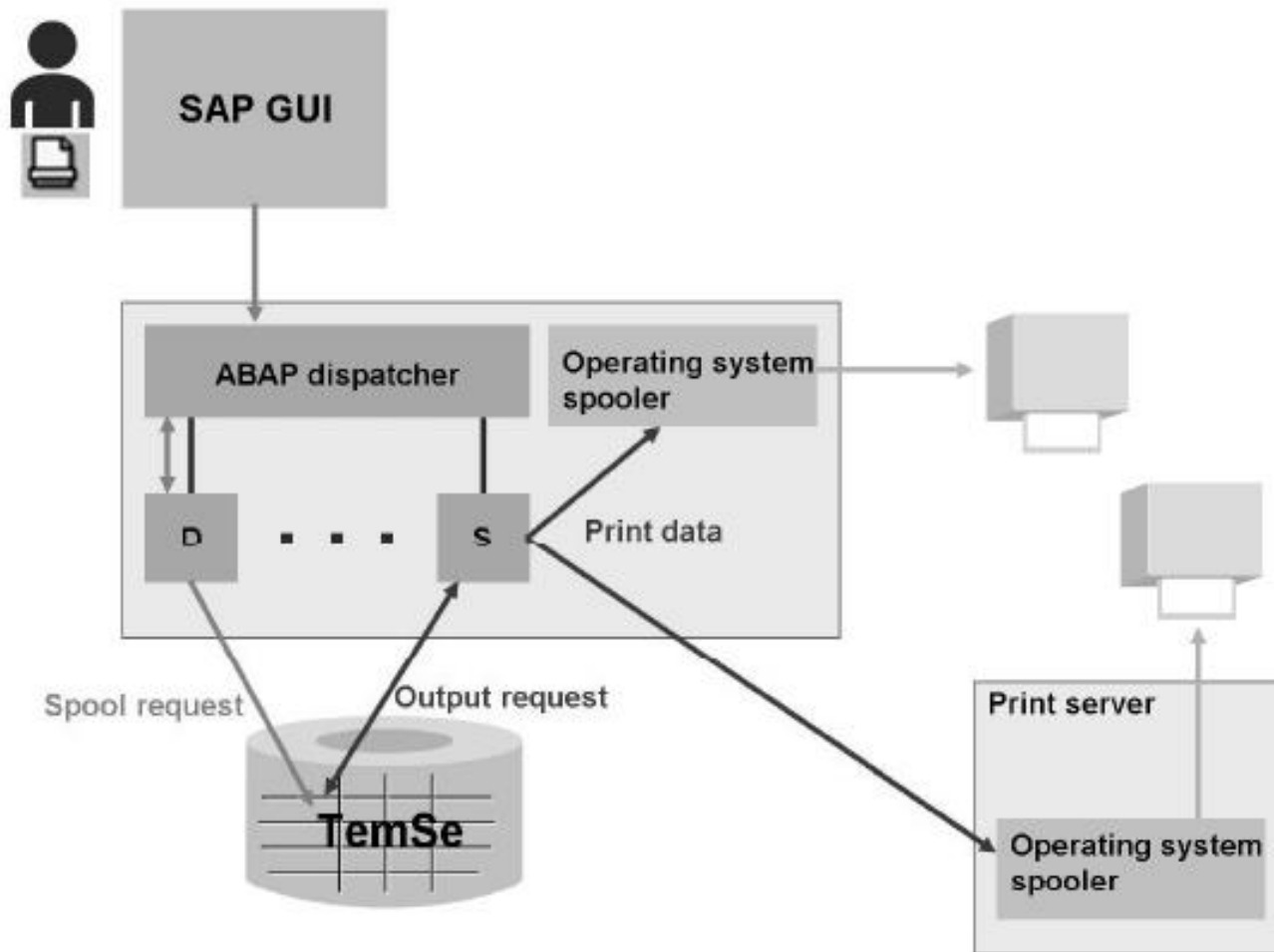




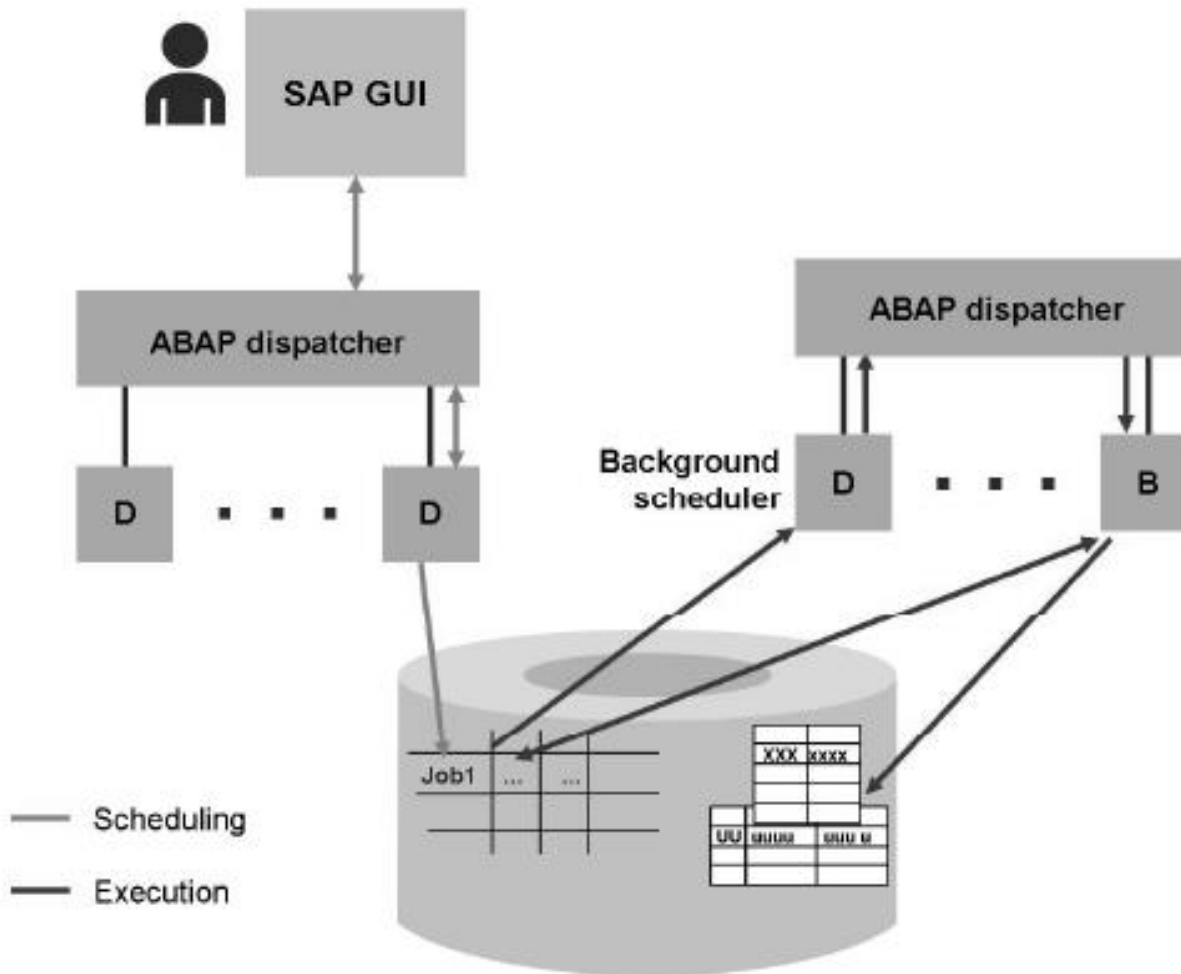
# Principles of Asynchronous Updates



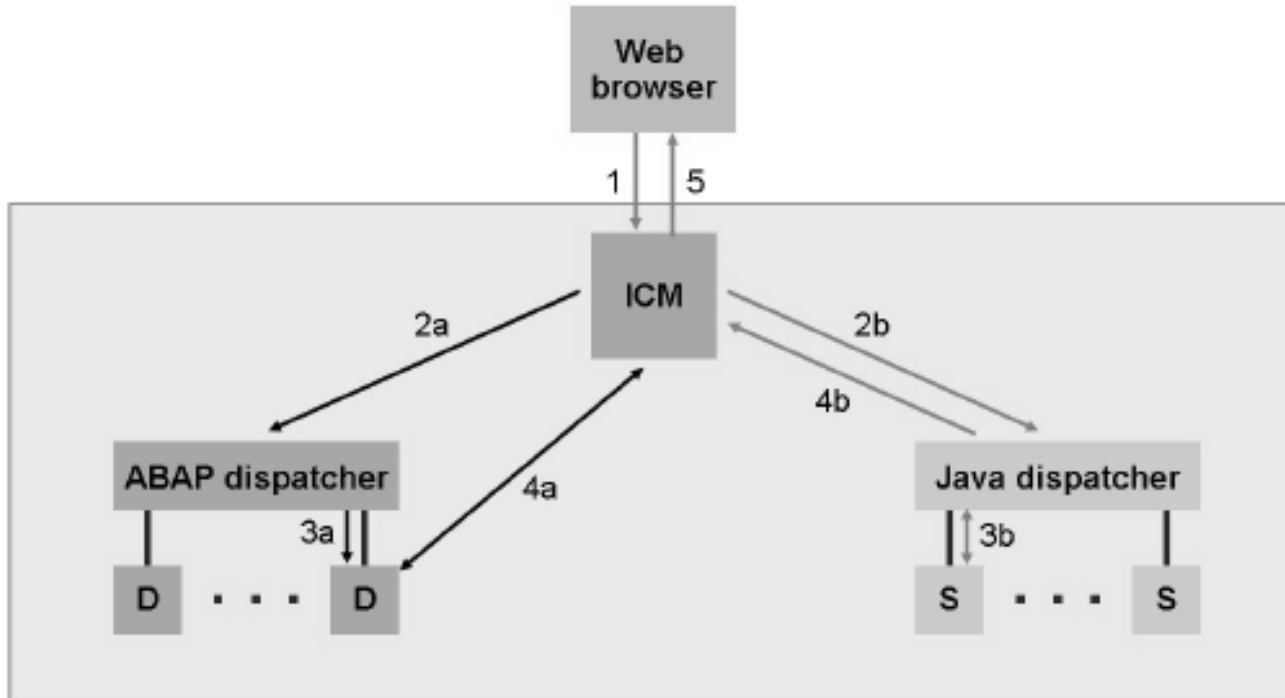
# Print Processing



# Background Processing



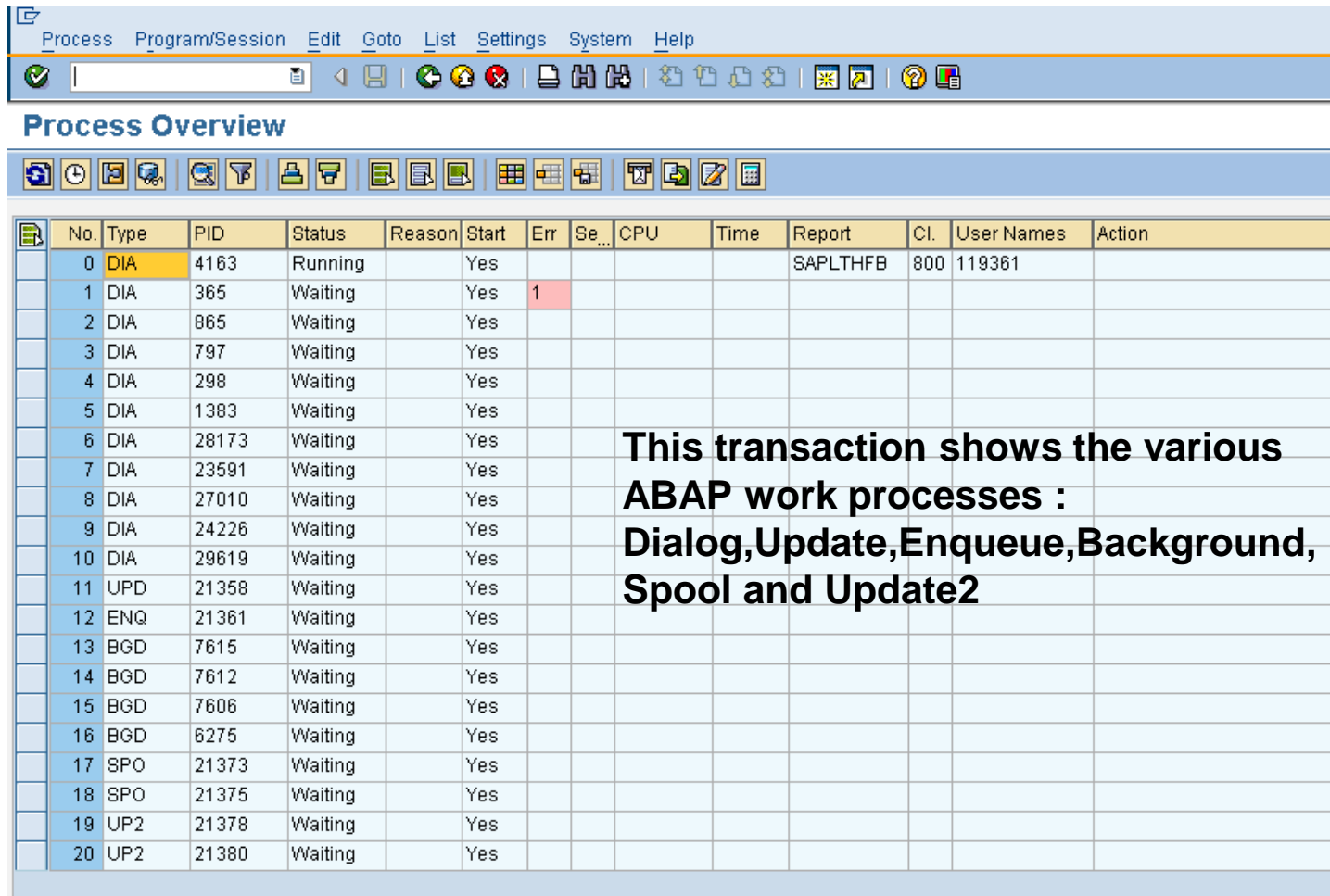
# Internet Communication Manager (ICM)





# **BREAKOUT SESSION**

# ABAP Work Processes – SM50



The screenshot shows the SAP SM50 'Process Overview' screen. The interface includes a menu bar with 'Process', 'Program/Session', 'Edit', 'Goto', 'List', 'Settings', 'System', and 'Help'. Below the menu is a toolbar with various icons for navigation and actions. The main area displays a table of work processes. The table has columns for No., Type, PID, Status, Reason, Start, Err, Se..., CPU, Time, Report, Cl., User Names, and Action. The first row (No. 0) is highlighted in yellow and shows a 'DIA' process with PID 4163, Status 'Running', and Report 'SAPLTHFB'. The second row (No. 1) is highlighted in red and shows a 'DIA' process with PID 365, Status 'Waiting', and an error count of 1. The remaining rows (Nos. 2-20) show various process types (DIA, UPD, ENQ, BGD, SPO, UP2) in 'Waiting' status.

No.	Type	PID	Status	Reason	Start	Err	Se...	CPU	Time	Report	Cl.	User Names	Action
0	DIA	4163	Running		Yes					SAPLTHFB	800	119361	
1	DIA	365	Waiting		Yes	1							
2	DIA	865	Waiting		Yes								
3	DIA	797	Waiting		Yes								
4	DIA	298	Waiting		Yes								
5	DIA	1383	Waiting		Yes								
6	DIA	28173	Waiting		Yes								
7	DIA	23591	Waiting		Yes								
8	DIA	27010	Waiting		Yes								
9	DIA	24226	Waiting		Yes								
10	DIA	29619	Waiting		Yes								
11	UPD	21358	Waiting		Yes								
12	ENQ	21361	Waiting		Yes								
13	BGD	7615	Waiting		Yes								
14	BGD	7612	Waiting		Yes								
15	BGD	7606	Waiting		Yes								
16	BGD	6275	Waiting		Yes								
17	SPO	21373	Waiting		Yes								
18	SPO	21375	Waiting		Yes								
19	UP2	21378	Waiting		Yes								
20	UP2	21380	Waiting		Yes								

**This transaction shows the various ABAP work processes :  
Dialog, Update, Enqueue, Background,  
Spool and Update2**

# Few Important Tcodes for Basis Consultant

**SM02** – To send messages to users who are logged in and new users logging to the client.

**SM04 /AL08** – To check the number of users who are logged into the system and in which client and how many sessions each user is generated and in each session what transaction is being executed.

**SM13** – Manage Update records, To keep track of the status of the Update service is Active, in case it is not active then we activate from the Update Administrator

**SM51** – Display application servers

SM50 - Manage Work processes

SM12 – Manage Lock Entries

SU01 – User Maintenance

**SM37** – To monitor the status of the jobs that are created by a user and for specific dates.

**PFCG** – This is used to maintain roles in SAP system.

**SM21** – SAP system log is displayed for the values inputted in the initial screen. The values that can be maintained is the From Date.

**RZ20** – This is used for cross system monitoring.

# Checking for Locks – SM12

Select Lock Entries

List

Table name

Lock argument

Client 800

User name

- You can check for lock entries in a system using SM12 transaction

Lock Entry List

Client	User name	Time.....	Lock mode	Table	Lock Argument	Use Count.	Use Count.
800		18:45:14	S	VBAK	800\$%&sdbatch	0	1
800		18:45:14	E	VBAK	8000000005184	0	1

- The above screen shows locks on table VBAK (Sales Order Table)
- The lock will remain on the table until the user either saves the sales order data or exits the transaction without saving



# Ethic Coder