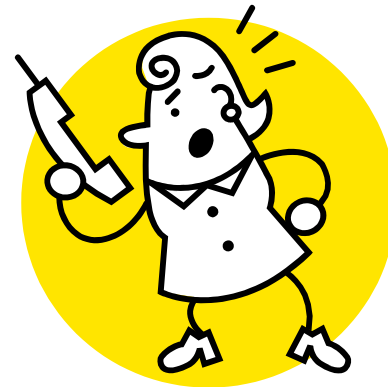
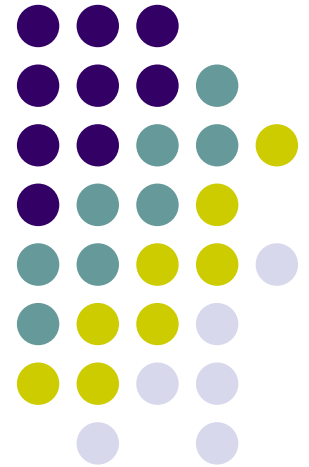
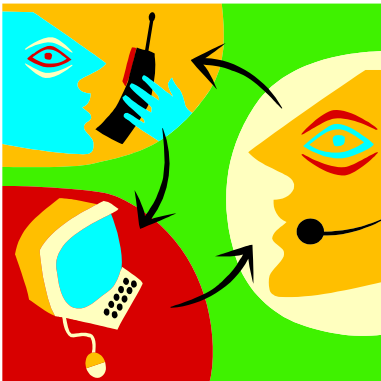


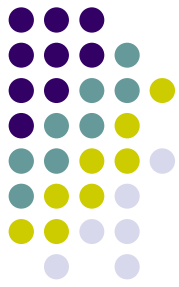
Press 1 for “How to count”
Press 2 for “an IVR”
Press 3 for “using Function Points”



Presented by
Tammy Preuss
CFPS, PMP, Lean Six Sigma Black Belt
AT&T

September 13, 2007





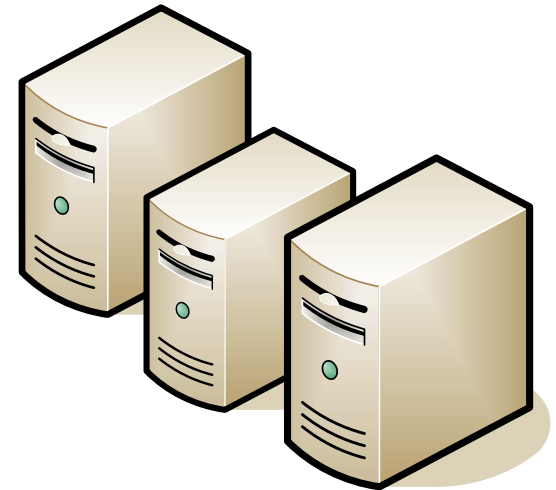
Overview

- What is an IVR
- Using Function Points to count an IVR
 - Identifying Scope & Application Boundary
 - Counting Data Functions
 - Counting Transactional Functions
 - Determining Value Adjustment Factor
- Counting Example

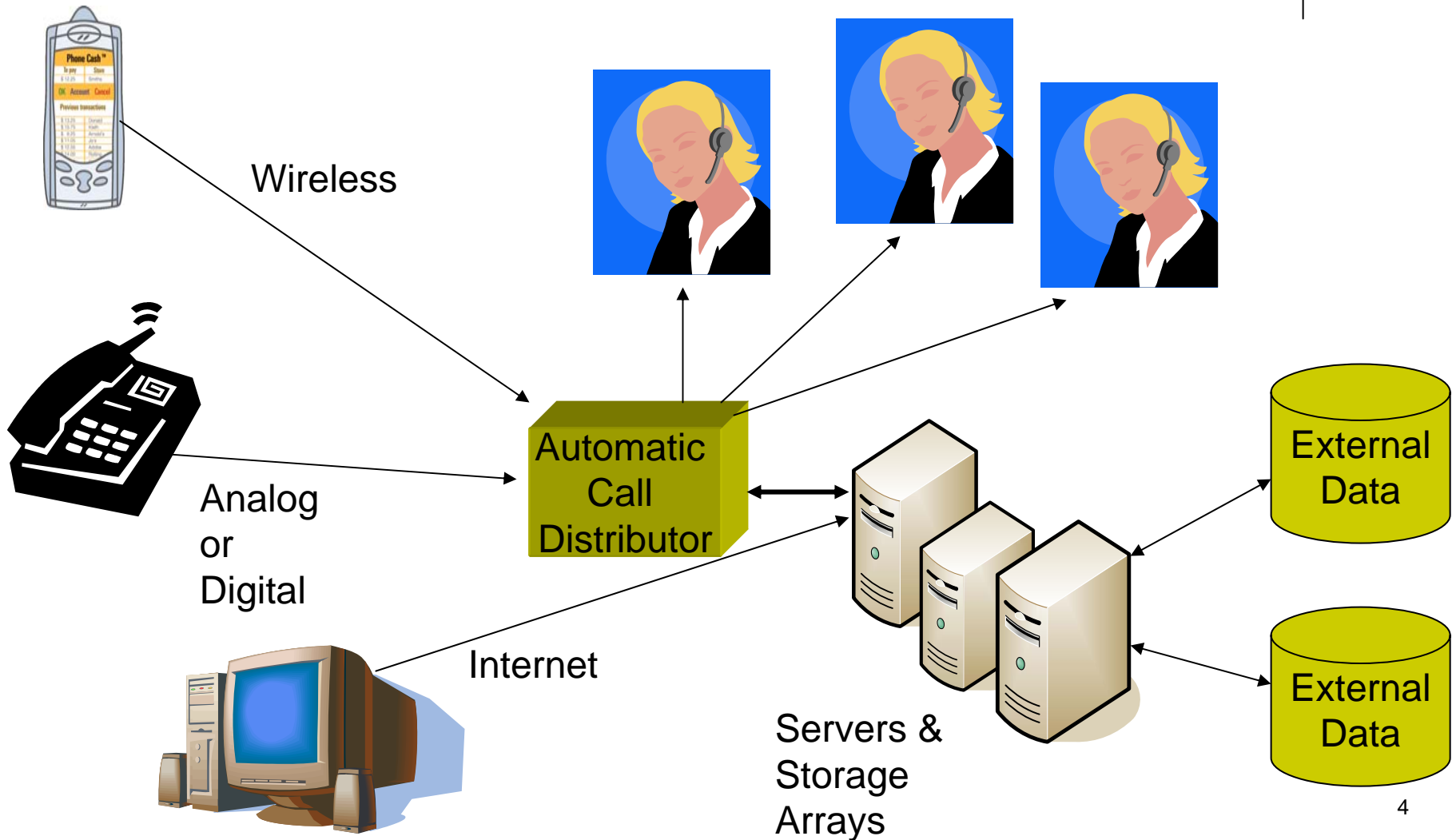
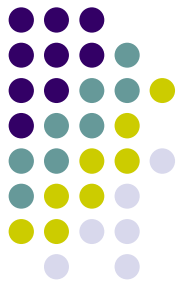
What is an IVR (Interactive Voice Response) system



- A computerized system that allows a person, typically a telephone caller, to select options from a voice menu and otherwise interact with the computer phone system.
 - Variations include using
 - Internet,
 - text messaging



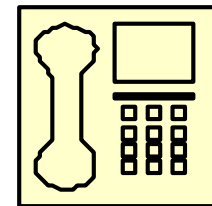
What are the components of an IVR

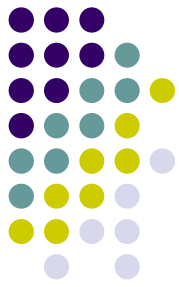




What is it used for

- *Order Entry*
- *Credit Card Processing*
- *Order Status*
- *Customer Satisfaction Surveys*
- *Employee Benefit Surveys*
- *Call Recording Services*
- *Help Desks*
- *Locator Services*
- *Customer Service*
- *Literature Fulfillment*
- *Lead Generation & Capture*
- *Contests and Opinion Polls*





Why use one?

- In 2001, cost of a call to a live operator in the US was \$5.50/call versus \$.45/call on IVR
- 7 x 24 access
- Phone or web access by customers
- Inform customers of new offers or promotions
- Generate sales leads



Press 4...

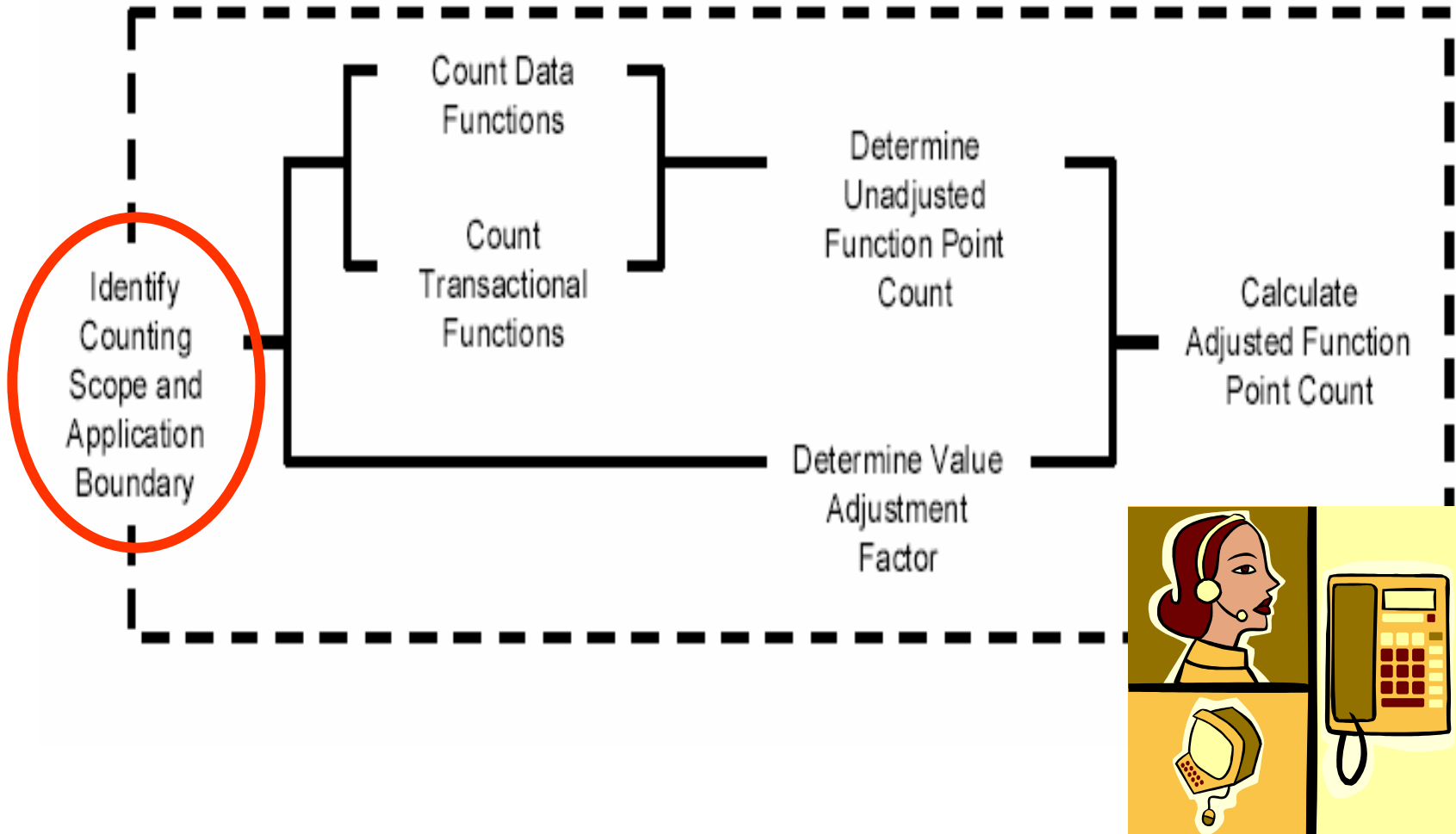
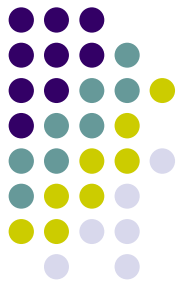
Best Practices tips for an IVR

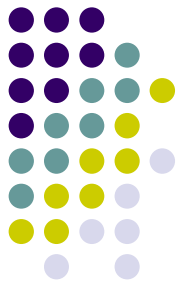


Consciously shape your system's personality or identity. Select a voice that is both welcoming and confident, expressive or "perky" rather than monotonous or dull, and use logical criteria to decide whether to use a male or female voice.



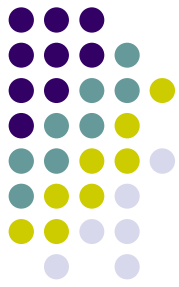
Components of Function Point Count





Preparation for the Count

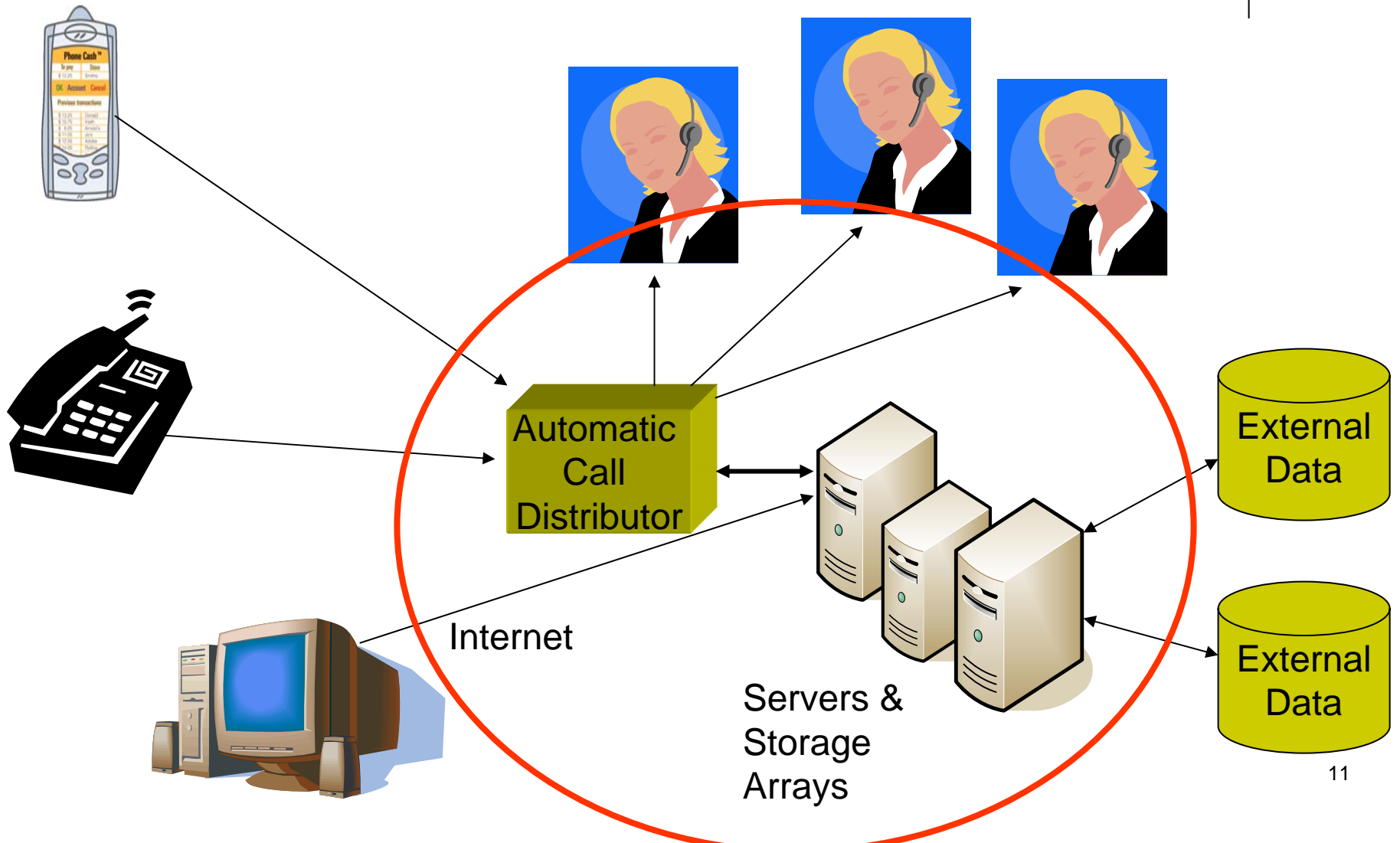
- Call Flows (aka Call Trees)
- Administrative Menus
- Database schemas
- Requirements documents
- Reports
- User interviews
- Monitoring or using the IVR in real time



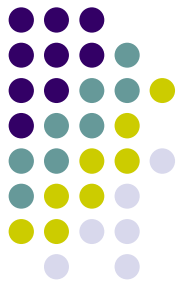
Identify Counting scope

- Purpose of the count
 - Creator/Developer of IVRs
 - Contracting with 3rd party for IVR support
 - Enhancing an existing IVR

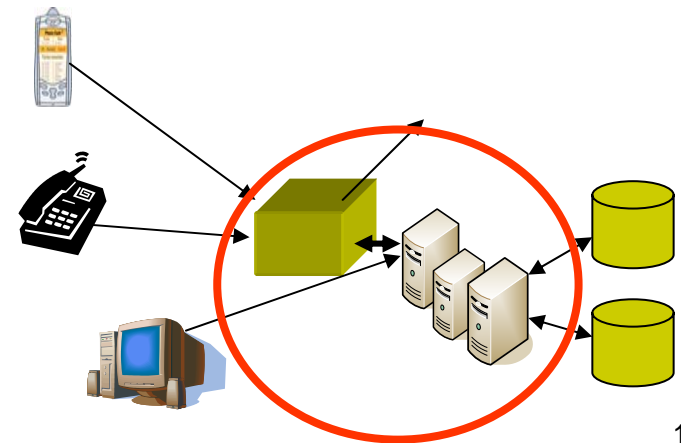
Basic IVR



Questions to consider in helping determine the boundary

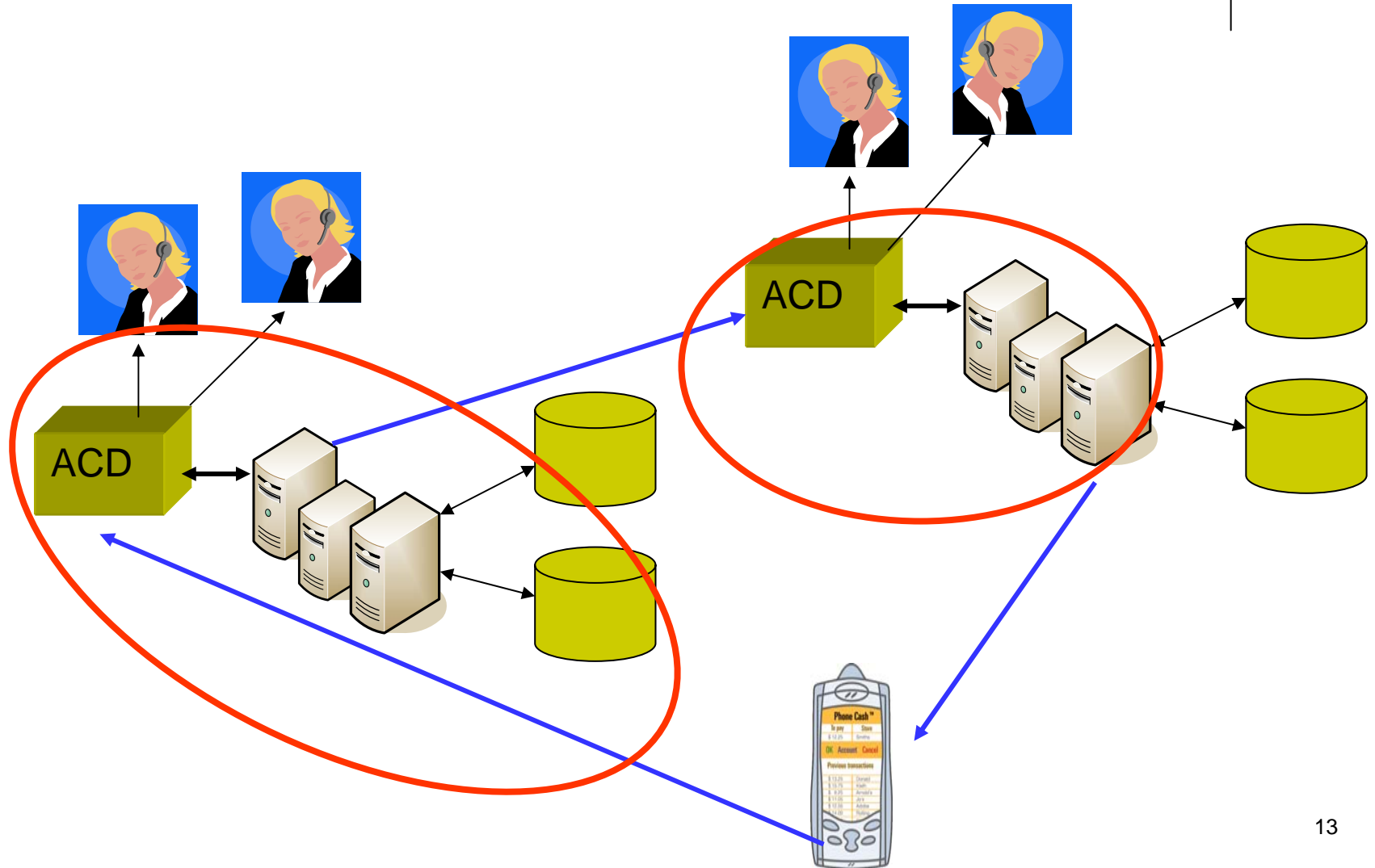
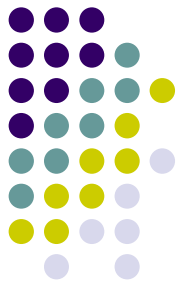


- Does the IVR maintain any shared data between other applications?
- What different methods are used to access IVR? Do these use different processing logic?
 - Eg Phone, web, text messaging
- Is the IVR used to broadcast information?
 - an IVR sending information instead of receiving information
 - Eg Sales generation

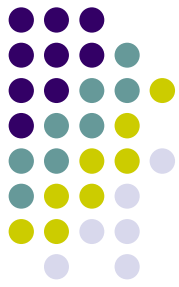


More complex IVR boundary

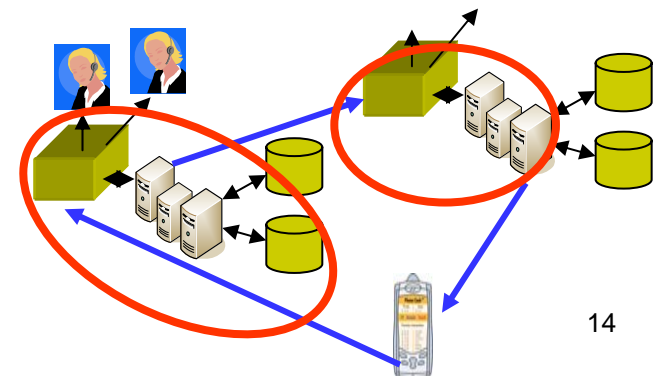
Daisy Chained IVRs - #1



Questions to consider in helping determine the boundary

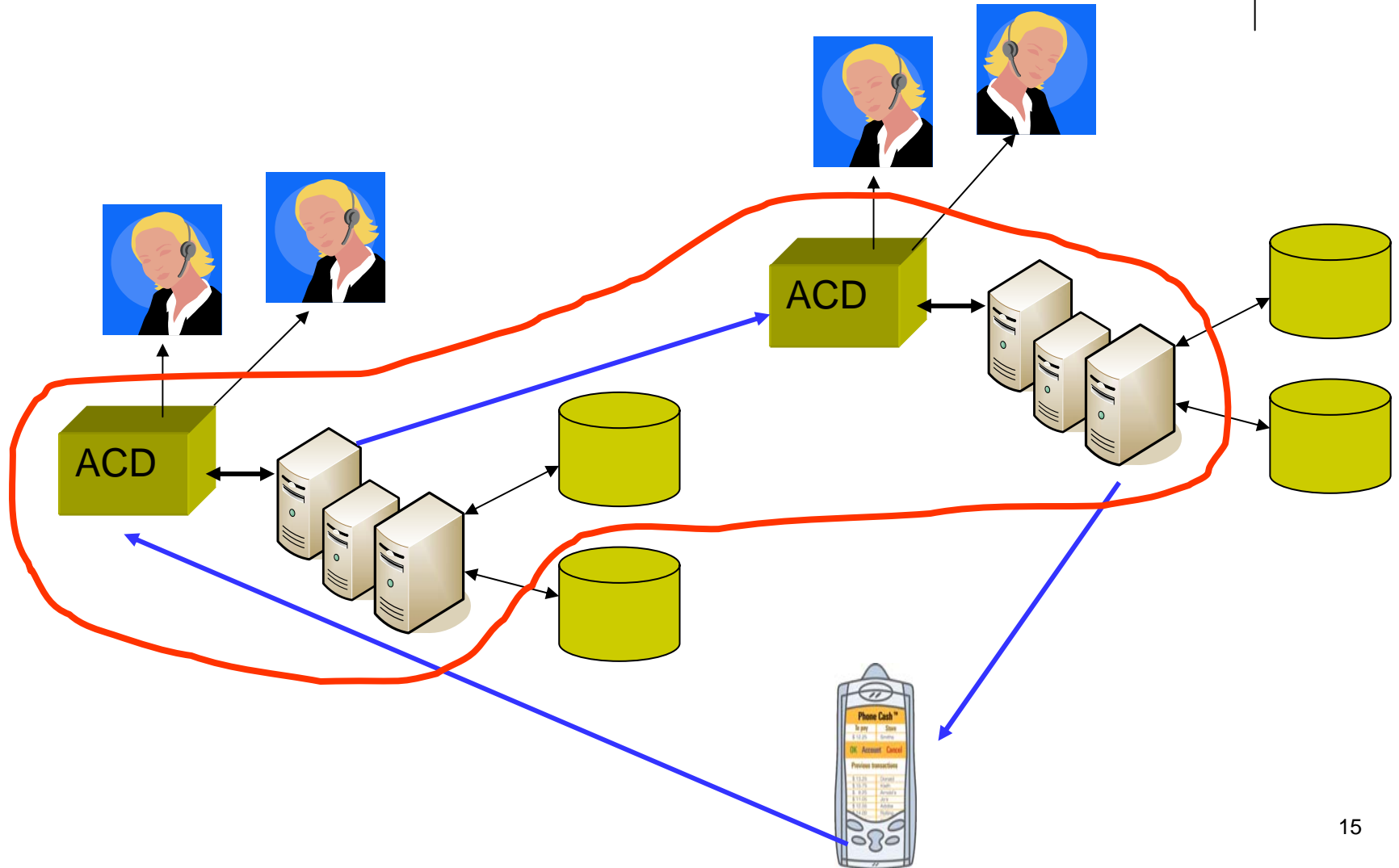
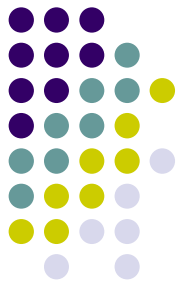


- Same questions as in the simple IVR
- What are some reasons that these 2 IVRs would be counted separately?
 - Each IVR is a different vendor and the purpose of the count is to focus on one IVR exclusive of the other
 - One may be internal while the other is external
 - Each IVR performs a different function and each leaves the business in a consistent state
 - Eg catalog ordering IVR and customer feedback IVR

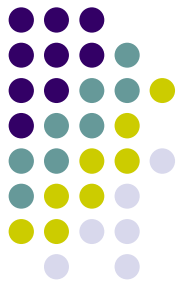


More complex IVR boundary

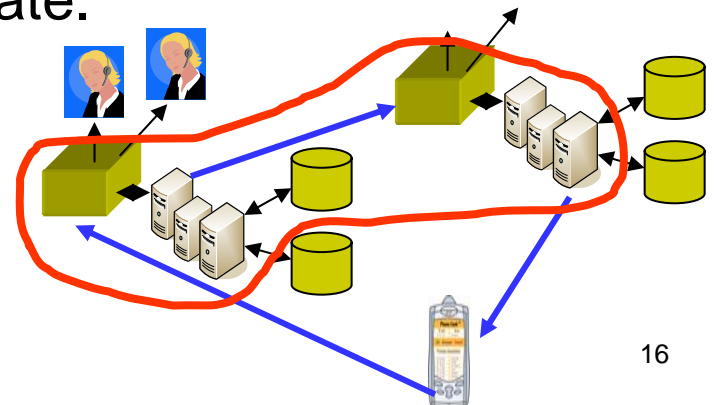
Daisy Chained IVRs #2



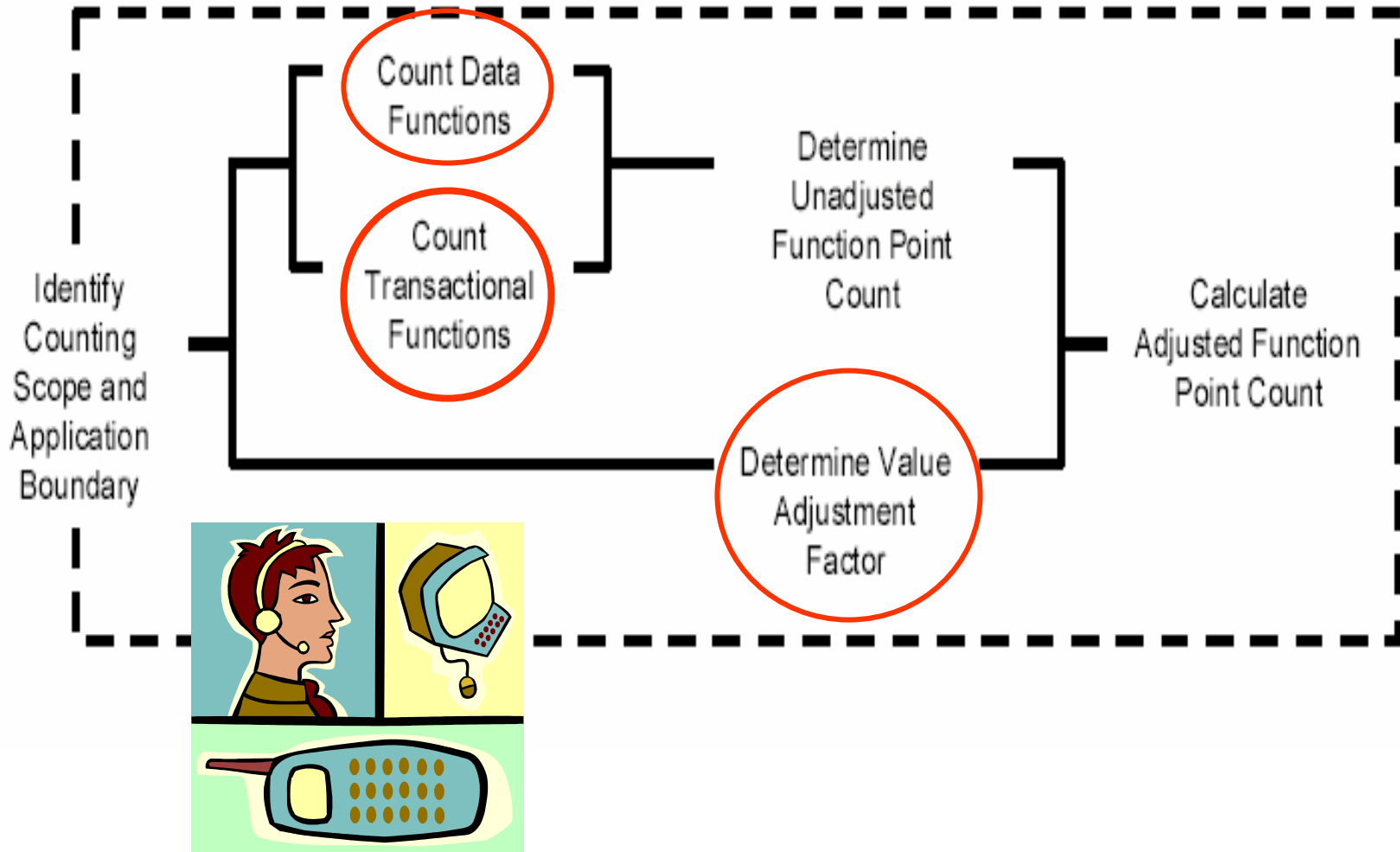
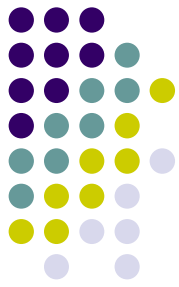
Questions to consider in helping determine the boundary

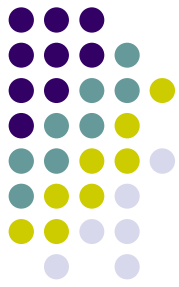


- Same questions as in the simple IVR
- What are some reasons that these 2 IVRs would be counted together?
 - The purpose of the count is to focus on the total end to end process, regardless of how many IVRs are involved.
 - Each IVR performs a part of a transaction but the transaction isn't complete without all the IVRs. Business must be in consistent state.
 - Eg. Catalog order IVR and payments IVR



Components of Function Point Count





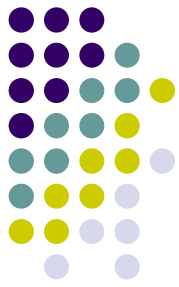
2 Data Levels for an IVR

- Technical Administrative Data
 - Voice Recordings (ILF)
 - Menu recordings and informational recordings (promotions, hold music)
 - Call/Event Type (ILF)
 - Security (ILF)
 - Reference Data
 - Call Routing/Transfers (ILF)
 - System Configuration (ILF)
 - Reporting data (ILF)
- Business Layer Data
 - Call Initialization (ILF)
 - Business Reference data (ILF)
 - Business data located in other applications that are:
 - referenced by IVR (EIF)
 - maintained by IVR (ILF)
 - Logs of call/web events (ILF)
 - Reporting data (ILF or EIF)
 - Customer Treatment Rules (ILF)

Transactions



- Transactions
 - Maintain Data listed in data list (EI, EQ)
 - Technical Administrative Data
 - Business Data Layer
 - Be sure to check for shared data
 - Primary business purpose of IVR functions (EI, EQ)
 - Credit Card transactions
 - Account Balances
 - Buying merchandise
 - Refilling a prescription
 - Reports (EO, EQ)
 - Technical Administrative Reports
 - Business Data Reports
 - Transferring Calls (EO)
 - Broadcasting Calls (EO)



Value Adjustment Factors

General System Characteristics

- Data Communications
- Distributed Data Processing
- Performance
- Heavily Used Configuration
- Transaction Rate
- Online data entry
- End-User Efficiency
- Online update
- Complex Processing
- Reusability
- Installation Ease
- Operational Ease
- Multiple Sites
- Facilitate Change

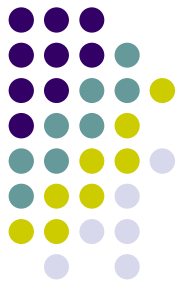
Scoring for Degrees of Influence

- 4-5
- 3-5
- 0-5 (usually 4-5)
- 3-5
- 0-5 (usually 4-5)
- 4-5
- 4-5
- 4-5
- 4-5
- 2-5
- 2-5
- 1-4
- 0-4
- 4-5

$$\text{VAF} = (\text{TDI} * .01) + .65$$

Press 5...

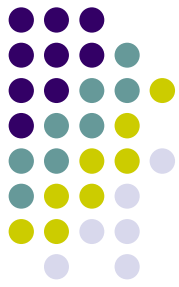
Best Practices tips for an IVR



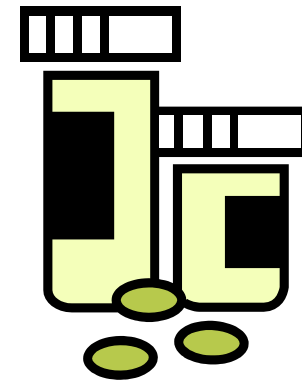
Use silence to convey structure: short pauses between menu items and slightly longer pauses between menus. Avoid long pauses, as they will confuse users.

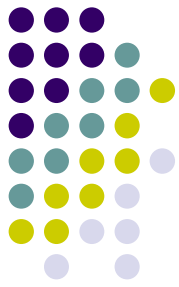


A Counting Example



- Prescription Refill IVR used to buy medications for the family pet

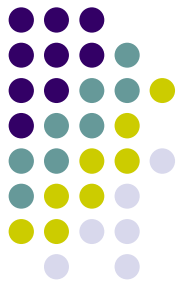




Purpose of the count

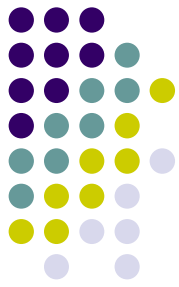
- A big box retailer has created a prescription refill IVR to support its new pharmacy department
- The big box retailer would like to know the functional size of its in-house developed IVR

Information that I would gather

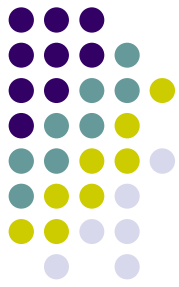


- Call Flows (aka Call Trees)
- Administrative Menus
- Database schemas
- Requirements documents
- Reports
- User interviews
- Monitoring or using the IVR in real time

Prescription Refill

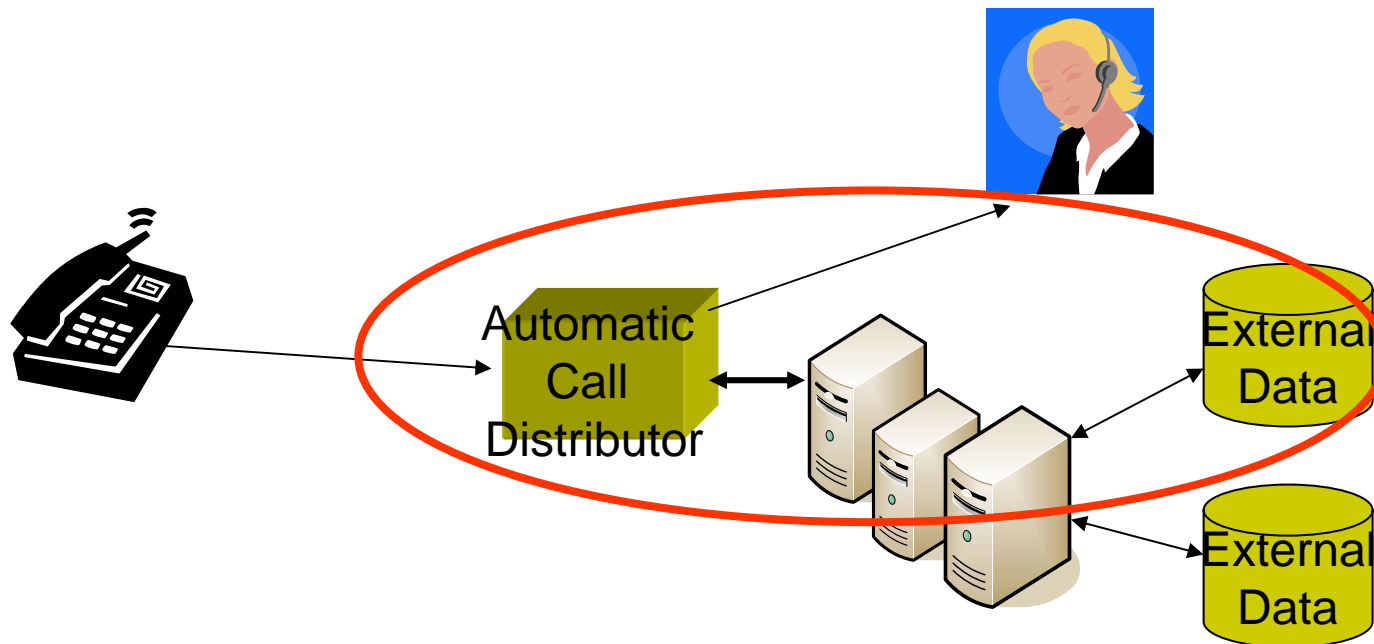


- Phone the 800 number
- Provide my prescription number via telephone keypad
 - System confirms that I can refill (via number of refills left)
 - System confirms my name
 - System asks if I'd like to find out more about the drug
 - System routes me to live person if I have questions
 - System provides me with the time prescription will be ready
- Hang up



Determine Boundary

- Simple IVR with some shared data

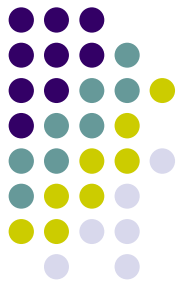


Data for Prescription Refills



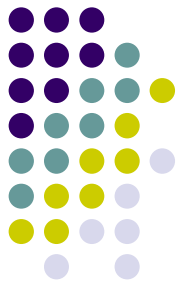
- Technical Administrative Data
 - Voice Recordings (ILF)
 - Menu recordings and informational recordings (promotions, hold music)
 - Call Type (ILF)
 - Security (ILF)
 - IVR administrator, customer,
 - Reference Data
 - Call Routing/Transfers (ILF)
 - Table of Routing data
 - System Configuration (ILF)
 - Different profiles to support reconfiguration of IVR to support busy hour traffic
 - Reporting data (multiple ILFs)
 - Data on IVR call statistics and wait times

Data for Prescription Refills

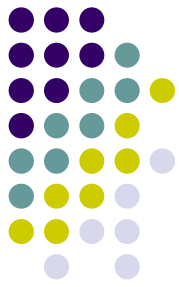


- Business Layer Data
 - Call Initialization (ILF)
 - Set up any special routing while customer is providing the IVR with information
 - Use my ANI to know if I am an existing customer
 - Business Reference data (ILF)
 - Reference data that supports Refill a prescription
 - Business data located in other applications that are:
 - Maintained (ILF)
 - Prescription Data
 - Workload of current stores
 - Referenced (EIF)
 - Customer Information
 - Store Locations
 - Catalog of medications & side effects
 - Logs of calls (ILF)
 - Reporting data (ILF)
 - Data on today's prescriptions

Transactions



- Transactions
 - Maintain Data (Add/Change/Delete/View)
 - Technical Administrative Data (EI, EQ)
 - Business Data Layer (EI, EQ)
 - Primary business purpose of the IVR
 - Refill a prescription (EI)
 - Configure IVR to Support Busy Hour Traffic (EI)
 - Reports (EO, EQ)
 - Technical Administrative Reports
 - Busy hour report
 - Average wait time report
 - Where are our customers having trouble in the call flow report
 - Business Data Reports
 - Number of prescriptions by store refilled via the IVR
 - Number of generics by state refilled via the IVR
 - Transferring Calls (EO)
 - Ability of IVR to transfer caller to a Customer Care Rep.



Value Adjustment Factor

General System Characteristics

- Data Communications
- Distributed Data Processing
- Performance
- Heavily Used Configuration
- Transaction Rate
- Online data entry
- End-User Efficiency
- Online update
- Complex Processing
- Reusability
- Installation Ease
- Operational Ease
- Multiple Sites
- Facilitate Change

Scoring for Degrees of Influence

- 5
- 3
- 4
- 3
- 4
- 5
- 4
- 4
- 5
- 2
- 3
- 4
- 4
- 5

$$\text{VAF} = (\text{TDI} \cdot .01) + .65$$

$$\text{VAF} = .55 + .65 = 1.2$$

Press 6...

Best Practices tips for an IVR

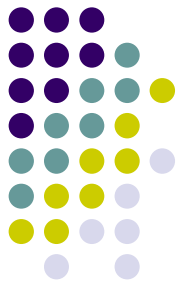


Keep messages short, and place verbal emphasis on keywords.

Thank you for attending
today's presentation!

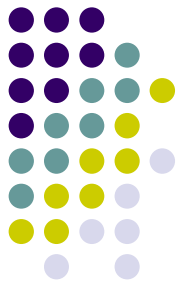
Press # to disconnect.





Contact Information

- Contact Information:
 - Tammy Preuss is still amazed that she is working for the same company after 16 years – even if the name has changed 4 times.
 - AT&T->AT&T Wireless->Cingular->AT&T
- She can be reached at:
 - tp7178@att.com
 - 425-288-6705 (work)
 - 425-753-7766 (cell)



Reference Information

- www.easyivr.com
 - **Basic IVR tips**
- www.callibus.com
- www.gartnergroup.com
 - **2001 study on cost of customer care rep versus IVR**
- www.wikipedia.org
- www.totalmetrics.com
 - **Function Points FAQs - Interactive Voice Recognition Systems**
 - © 2001 Total Metrics All rights reserved