

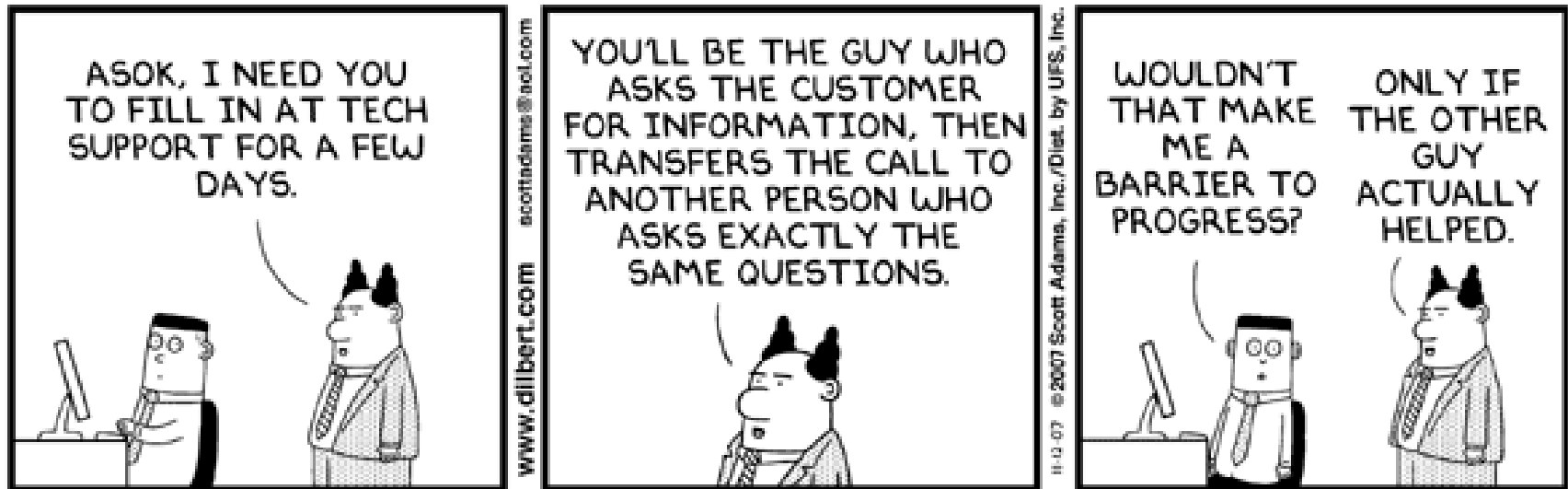
Reengineering Customer Support



**Presented by
Dave Brown**

*A Step by Step Methodology to Achieve
Quantum Leap Improvement*

Most processes become outdated



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20% Improvement Opportunity

- 80%+ of companies can achieve significant benefits through process reengineering
- Today, you will learn the concepts, methods, and key steps to achieve these results

Dave Brown

- 30 years experience
 - ✓ 20 working for tech companies
 - ✓ 10+ consulting/training
- Specialized expertise in Support Centers
 - ✓ Assessment & Improvement Projects
 - ✓ Staffing Models, Process Improvement, & Change Management
- Author of 1 book & 40+ articles/papers

Workshop Agenda

1. Introduction

- ✓ 8 Key Indicators
- ✓ The Assessment
- ✓ Change Management

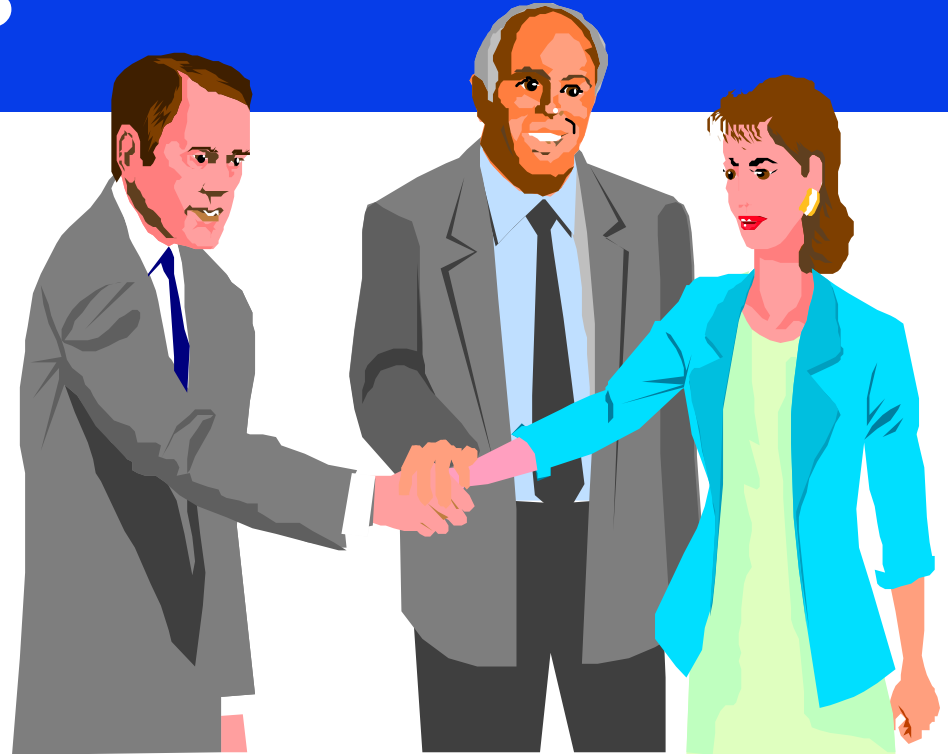
2. Methodology

- ✓ Skills Definition
- ✓ Phone Menu/IVR
- ✓ Data Collection & Modeling
- ✓ Staffing Calculations

3. Q&A

Introductions

- Name
- Company
- Role/Title



- Optional
 - ✓ One thing I really want to learn is...
or
 - ✓ I'm interested in learning about the 'Reengineering' because....

Reengineering

Reengineering is not 'incremental improvement'

The radical re-thinking...

...of business processes...

...in order to achieve...

...'quantum leap' improvement.

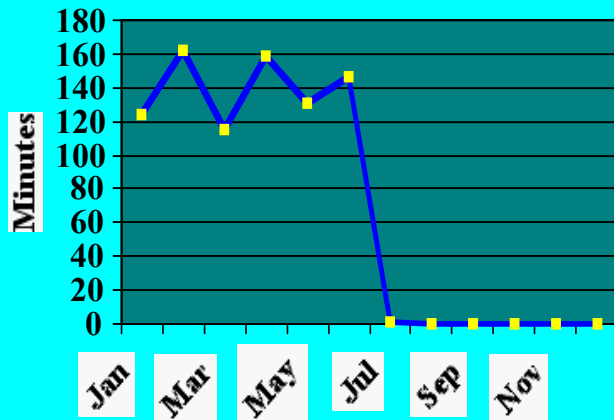
Source: "Reengineering the Corporation" by Michael Hammer & James Champy

Reengineering

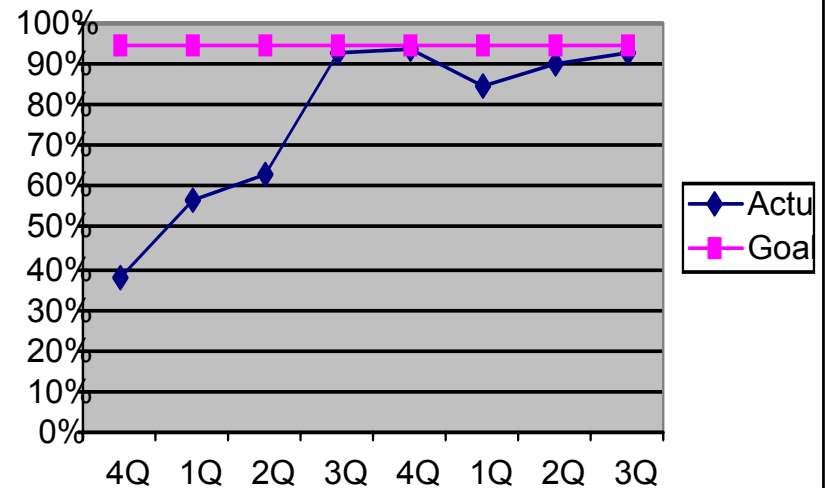
- 'Clean slate' approach
- Intense...complex
- Dramatic change: Difficult and stressful
- Requires commitment & investment
- 'Quantum leap' performance improvement

'Quantum Leap' Improvement

Average Speed of Ansv



Incoming Answ



8 Key Indicators

1. Customers are going around the process
2. Customers are seriously dissatisfied with the speed and/or quality of service
3. Employee satisfaction/morale is an issue
4. Observable flaws in the current process
5. A “one size fits all” support model
6. Failed attempts to use technology
7. Headcount:Performance ratio doesn't compute
8. Operational metrics don't compare well to industry benchmarks

8 Key Indicators

- Are just indicators!
- They tell us...
 - ✓ There appears to be a problem
 - ✓ The problem is likely serious enough to consider reengineering
 - ✓ An assessment is warranted

Do an Assessment 1st!

- “Complete Physical”
 - ✓ People, Process, & Tools
 - ✓ Plus strategy & performance measurement
- Validate initial hypothesis
- Identify root cause of problems
- Current State vs. Future State
- Estimate level of effort and ROI

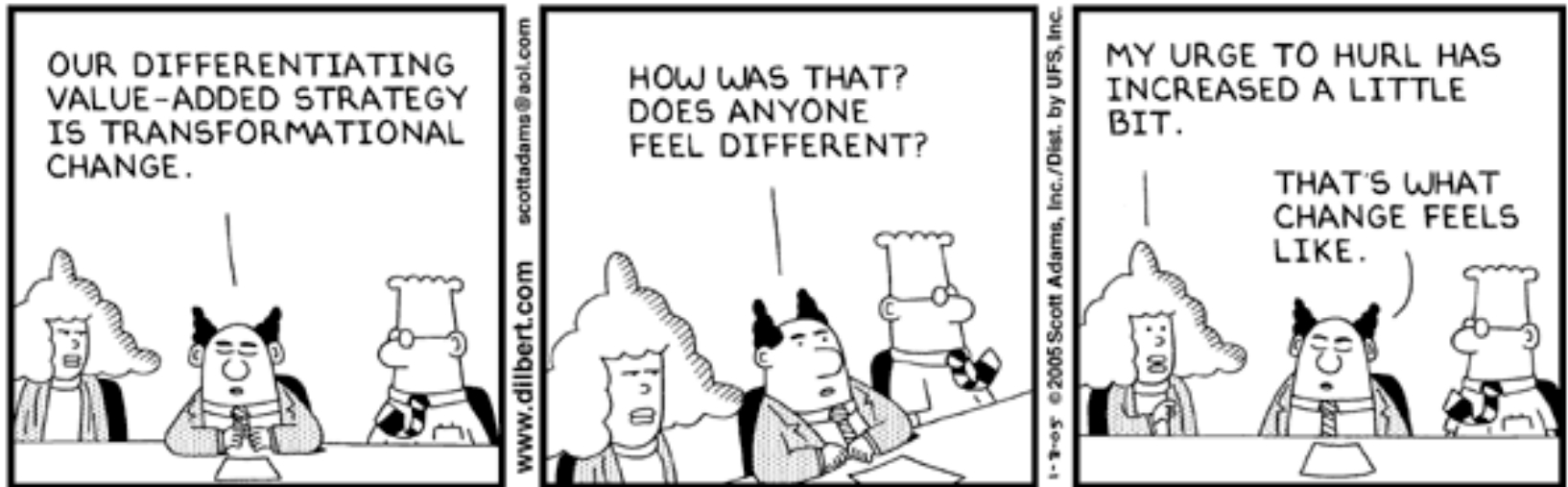
Key Concepts

- 6 Major Steps
- 30-60 days
- Complete picture is critical
- But 100% accuracy is not essential
 - ✓ Estimates are fine...
- Validate everything

Operational Assessment

- Summary Report should include...
 - ✓ Clear assessment of current state
 - ✓ Root cause of identified issues
 - ✓ Future state
 - ✓ Gap analysis
 - ✓ Roadmap
 - ✓ ROI
- Should confirm need and opportunity

Managing Change



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The Collaborative Team Approach

Why use teams?

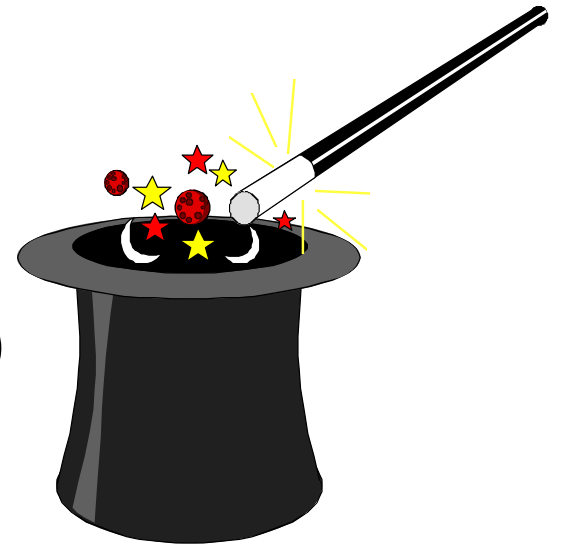
- ✓ Better results
- ✓ Buy-in
- ✓ Learning



Teams produce lasting results.

Roles

- Management Sponsor
- Project Manager
- Team Members (optimally 5)
- Team Facilitator(s)
- Resource(s) to teams
- Change Management Team



Why do most Reengineer?

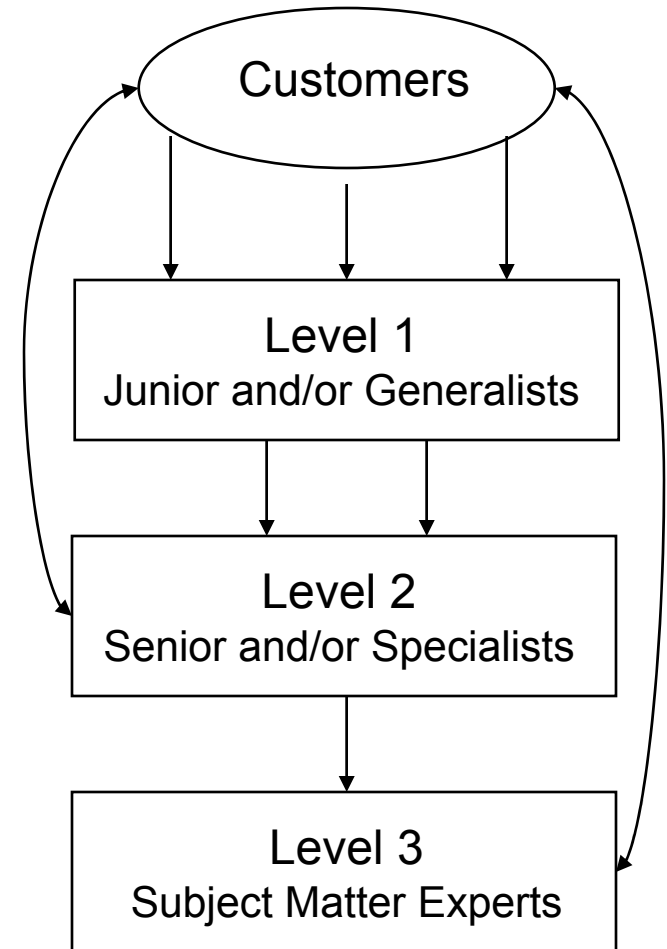
- Ineffective Call Handling Model
 - ✓ Call-back model
 - ✓ Traditional tiered model
 - ✓ Task mixing/switching
- Ineffective call routing
- Focus on wrong factors
 - ✓ Both model & measurements
 - ✓ Backlog and time to resolve versus FCR and effective call handling

Variations in Call Handling

- Traditional Tiered
- Ownership or “Touch and Hold”
- Hybrids and variations
- All are good for certain circumstances
- All have weaknesses

Traditional Tiered Model

- All issues come in to Level 1
- Level 1 has limited ability to resolve (50-70%) and escalates
- Level 2 is more experienced and can resolve most issues (up to 90% +/-)
- Level 3 (SME) is “most senior” and resolves remainder and/or goes to Development



Traditional Tiered Support (cont.)

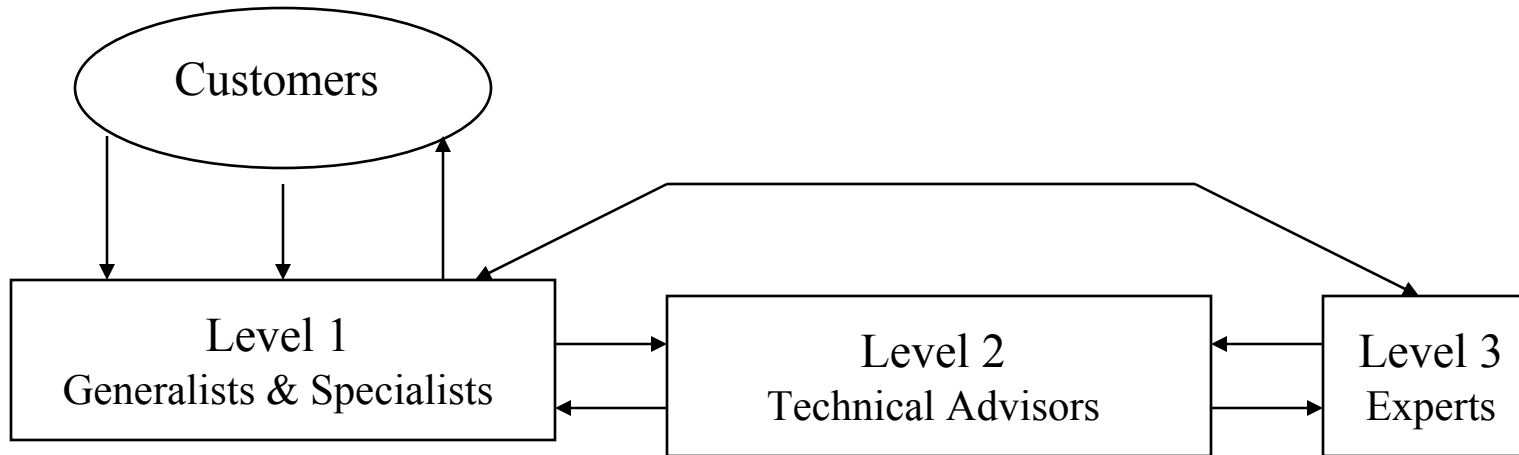
- Organizational structure mimics process
 - ✓ Formal tiers
- Very popular...very effective...but has some weaknesses
- Pros
 - ✓ Easier to staff and manage.
 - ✓ Good way to ramp up new people and provides clear career path.
 - ✓ Predictable, well-defined model. Customers know what to expect.

Traditional Tiered Support (cont.)

- **Cons**

- ✓ Not 'working problem through' is frustrating for reps (more of an issue in low initial-contact resolution environments).
- ✓ Is difficult for Level 1 to learn/advance because they hand-off all the more difficult support requests.
- ✓ Creates barrier between groups (and positions 'phones' as negative).
- ✓ Does not adjust for customer knowledge or problem complexity. More sophisticated customers may not approve.
- ✓ Customers with tough problems (some percentage) will have to go through a hand-off and may experience delay in getting a call-back.

Ownership Model



- Levels are still 'formal'... level determines what role you play in the process.
- Use skill/product-based routing on inbound
- Ownership of support request through completion
- Use resources to help resolve

Ownership Model (cont.)

- **Pros**

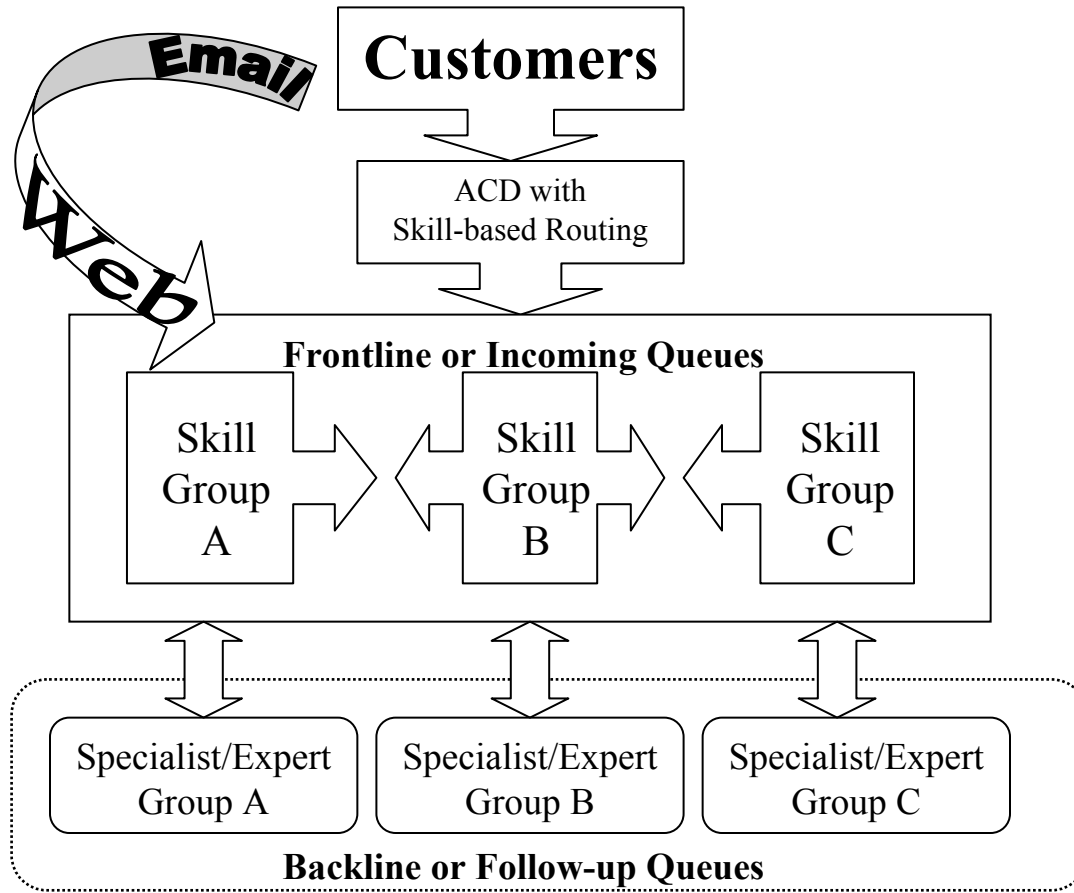
- ✓ Fewer hand-offs.
- ✓ Since requires higher skill level of staff, customers get to talk to higher level (less likely to get junior).
- ✓ Improves resolution time (assuming higher level staff).
- ✓ Enhanced knowledge transfer between various levels.

Ownership Model (cont.)

- **Cons**

- ✓ Does not work well if you have a high % of junior staff.
- ✓ Makes staffing 'tricky' if handling all calls live (long and short)...otherwise you have to provide 'off-time' to work your 'in progress' calls.
- ✓ Since there is no hand-off, backlog effects all service levels.
- ✓ Expertise in all areas is required (potential training requirements).

Filtering Model



- Frontline is staffed with mix of skills and “levels” of expertise
- Use skill-based routing and resolve high % on FL
- Pass long or tough problems to Backline where they have time to work on
- Staff rotates from FL to BL

Call Filtering Model (cont.)

- **Hybrid of Traditional and Ownership**
 - ✓ Takes best and eliminates the worst of both
- **Pros**
 - ✓ Utilizes staff where they are most valuable
 - ✓ Provides career path...and development...and follow through
 - ✓ Gives customers the best possible service
 - Quick response by keeping the Frontline focused
 - Majority of calls resolved quickly and efficiently
 - Escalated if best for situation

Call Filtering Model (cont.)

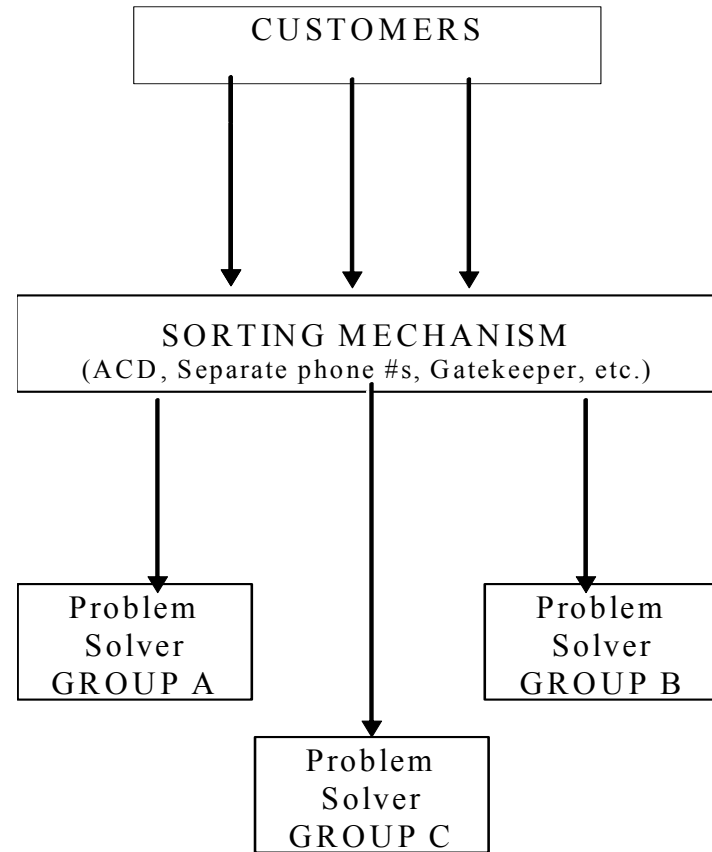
- **Cons**
 - ✓ Difficult to implement
 - ✓ More complex to operate and manage

Lunch Break!



A Common “Model Problem”: Sorting

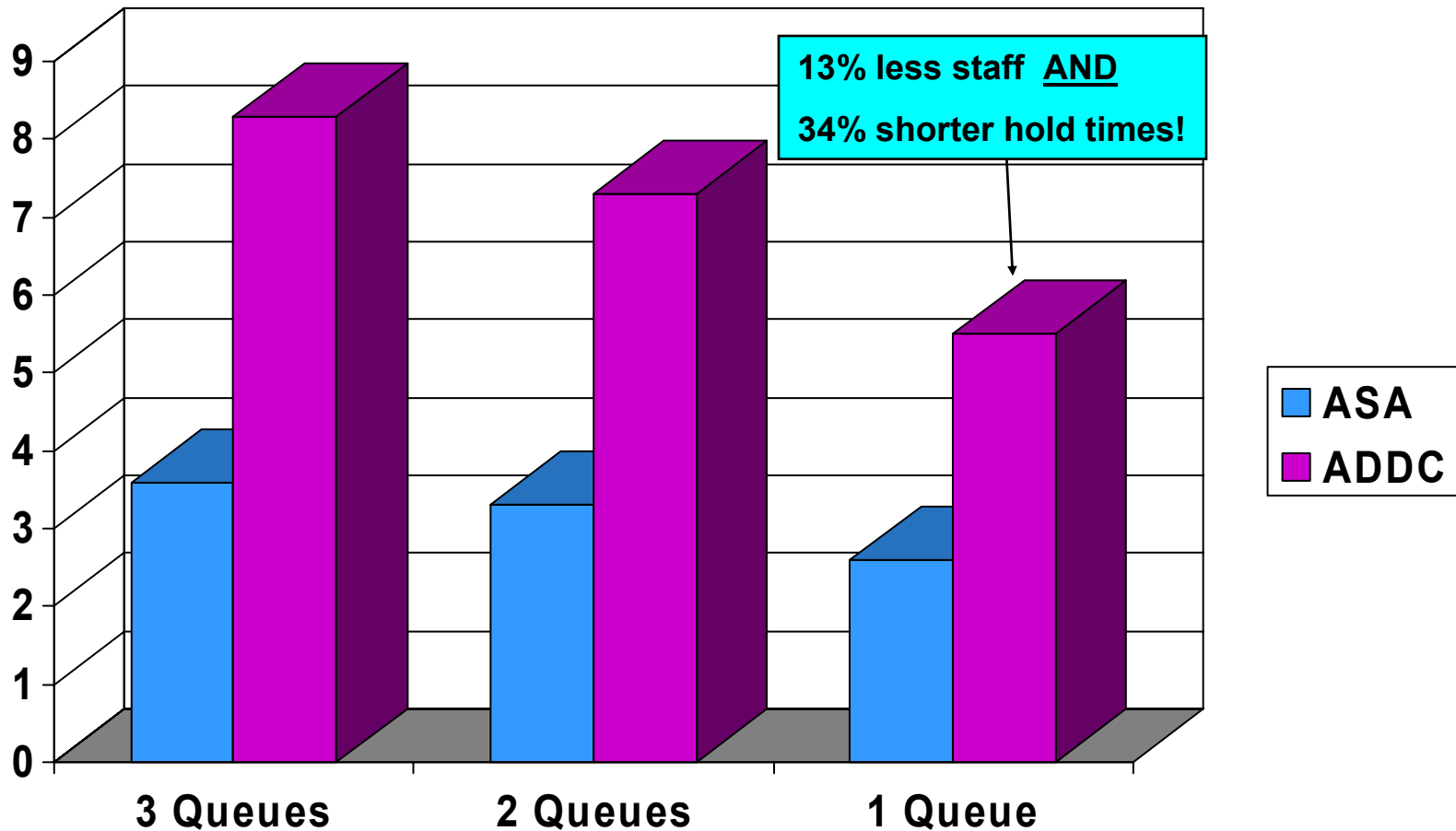
- Manual or Automated
- Directs callers to specialized group or individual
- Extremely common
- Very inefficient



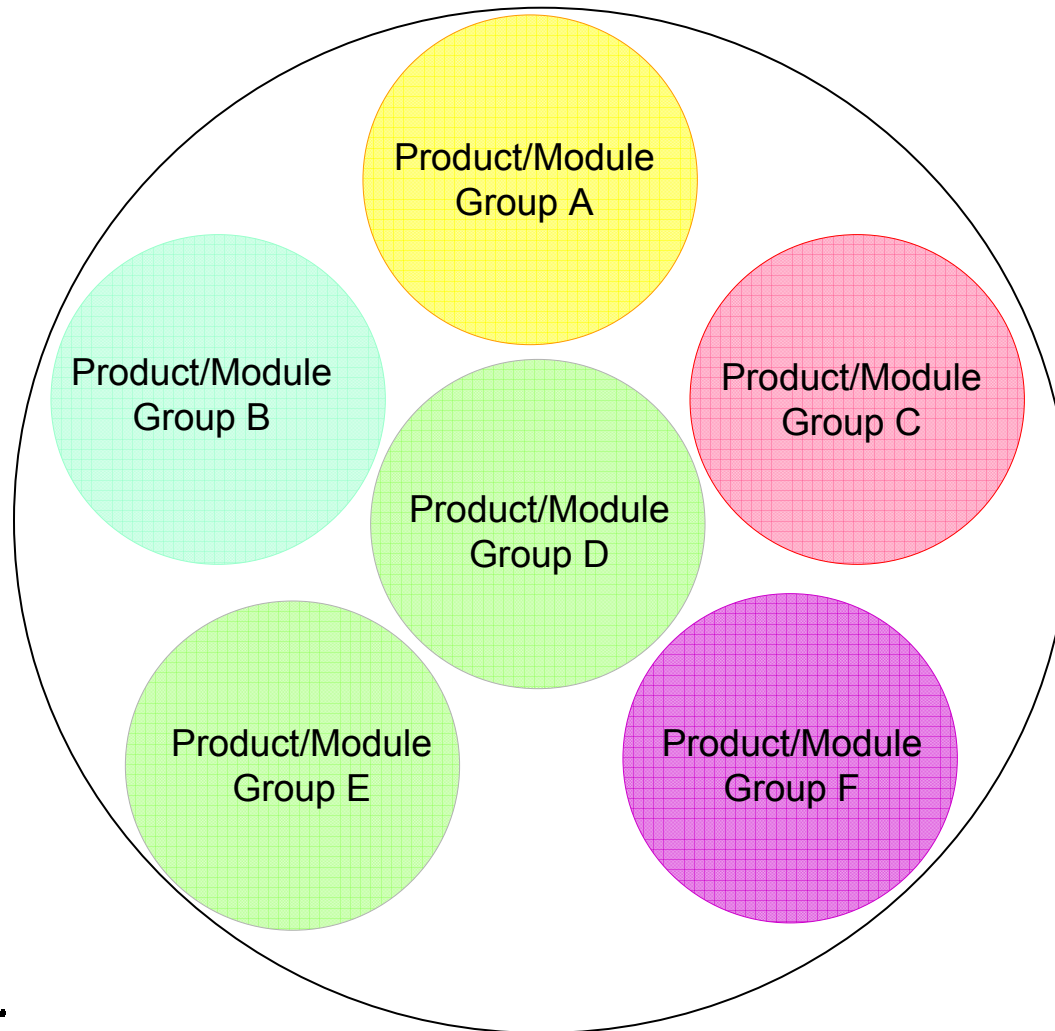
Effect of Splitting Queues

Calls per Hour	60	60	60
# of Queues	3	2	1
Calls/Queue	20	30	60
Target Service Level	75% in 45 seconds		
Required Staff per Queue	5	7	13
TOTAL STAFF REQUIRED	15	14	13
ASA (minutes)	3.6	3.3	2.6
ADDC	8.3	7.3	5.5

Effect of Splitting Queues



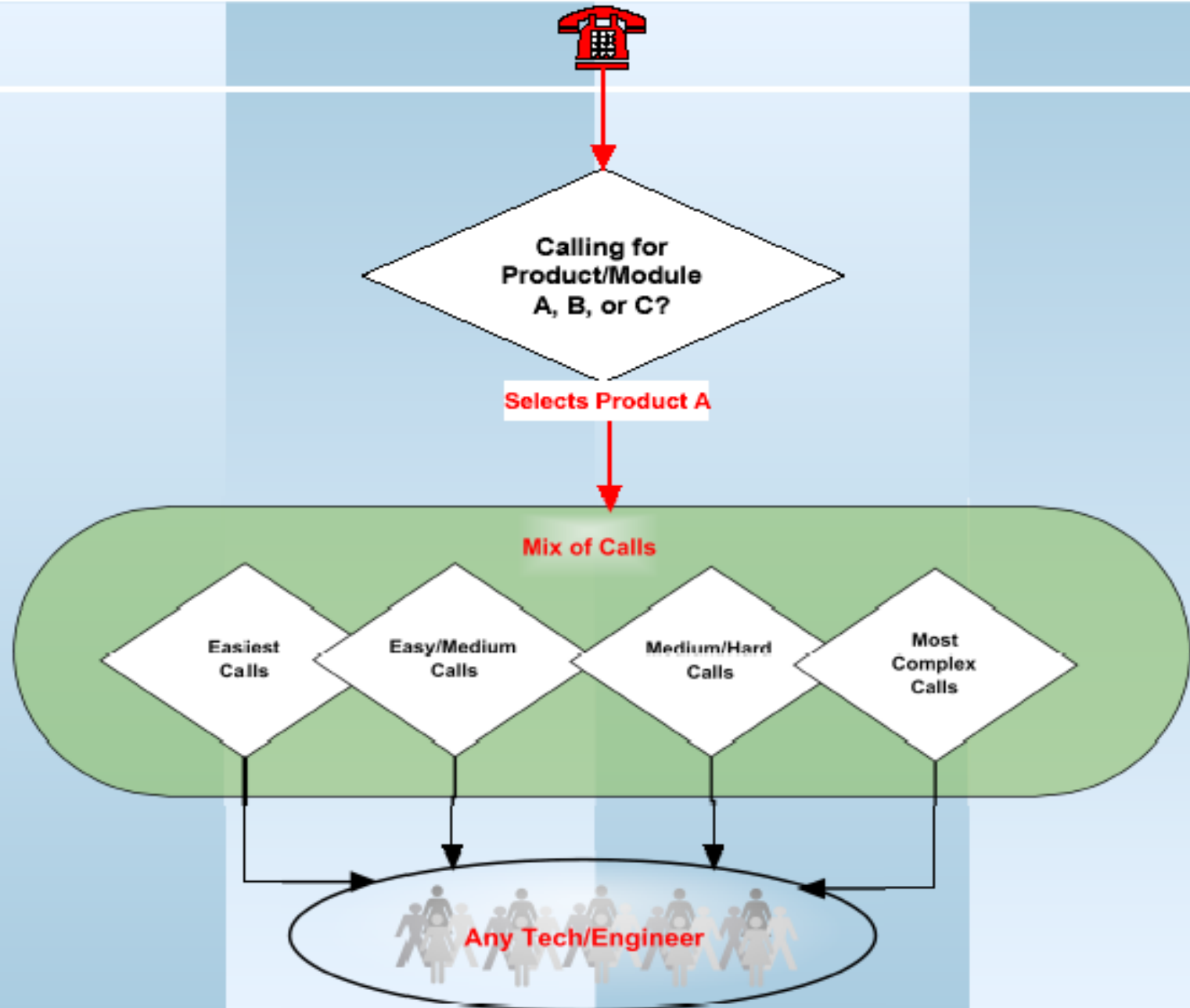
Sorting Model



Lack of Skills-based Routing

- Not getting the call to the best tech...
 - ✓ Increases handle time
 - ✓ Reduces chance of FCR
 - ✓ Wastes time of senior techs
 - ✓ Frustrates all techs
- Combined with Sorting Model causes much inefficiency

Typical Call Routing



Skills-Based Routing Concept



Calling for
Product/Module
A, B, or C?

Selects Product A

Selects from 2nd menu of reason for call

Easiest
Calls

Easy/Medium
Calls

Medium/Hard
Calls

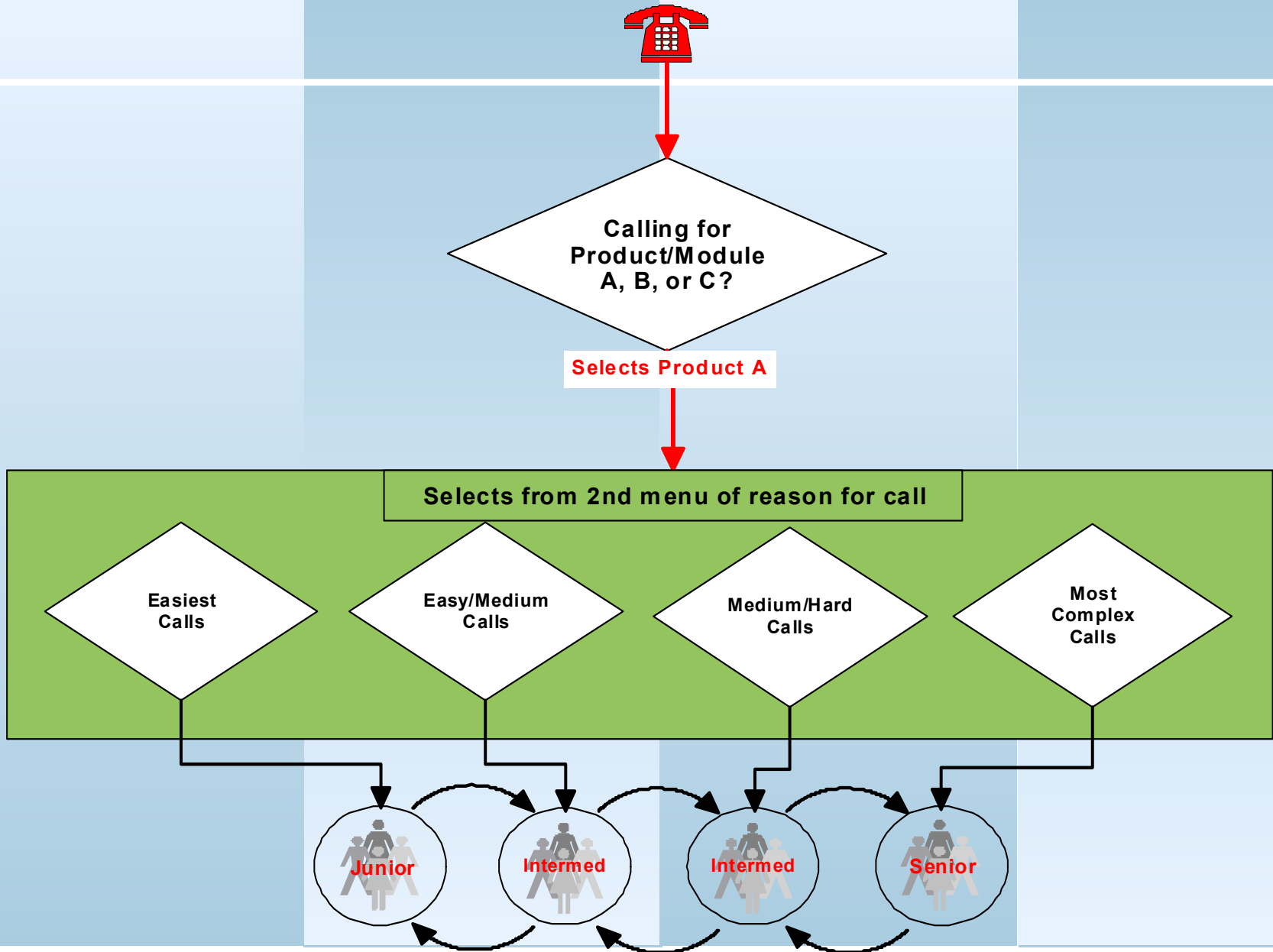
Most
Complex
Calls

Junior

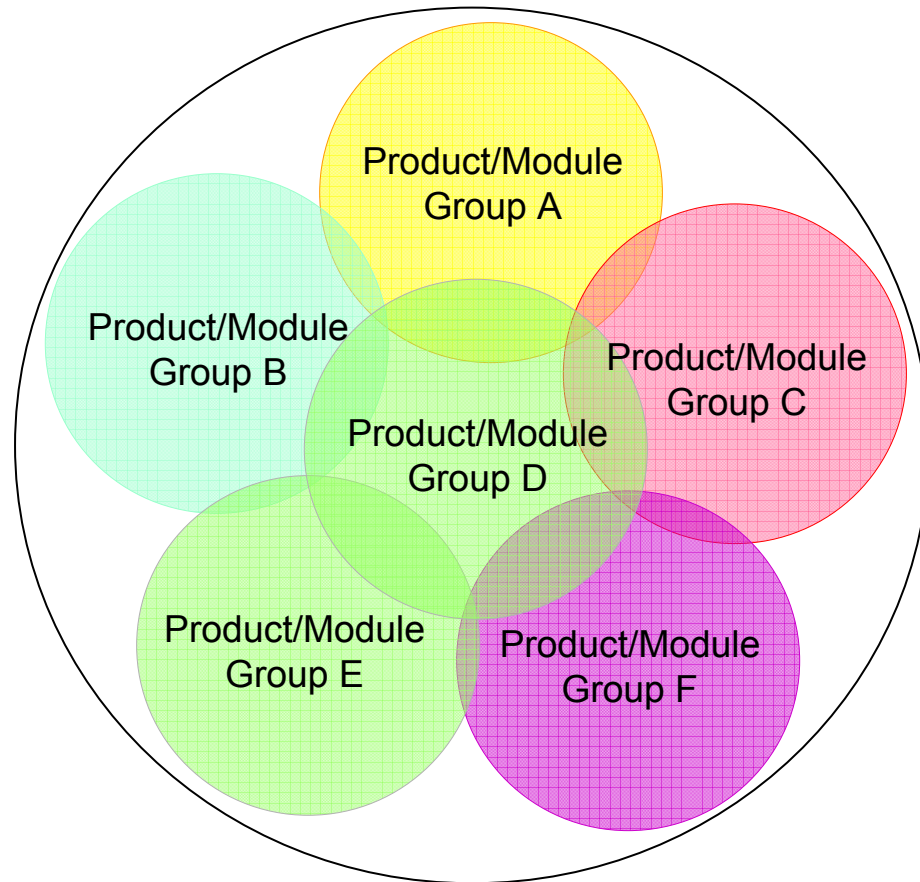
Intermed

Intermed

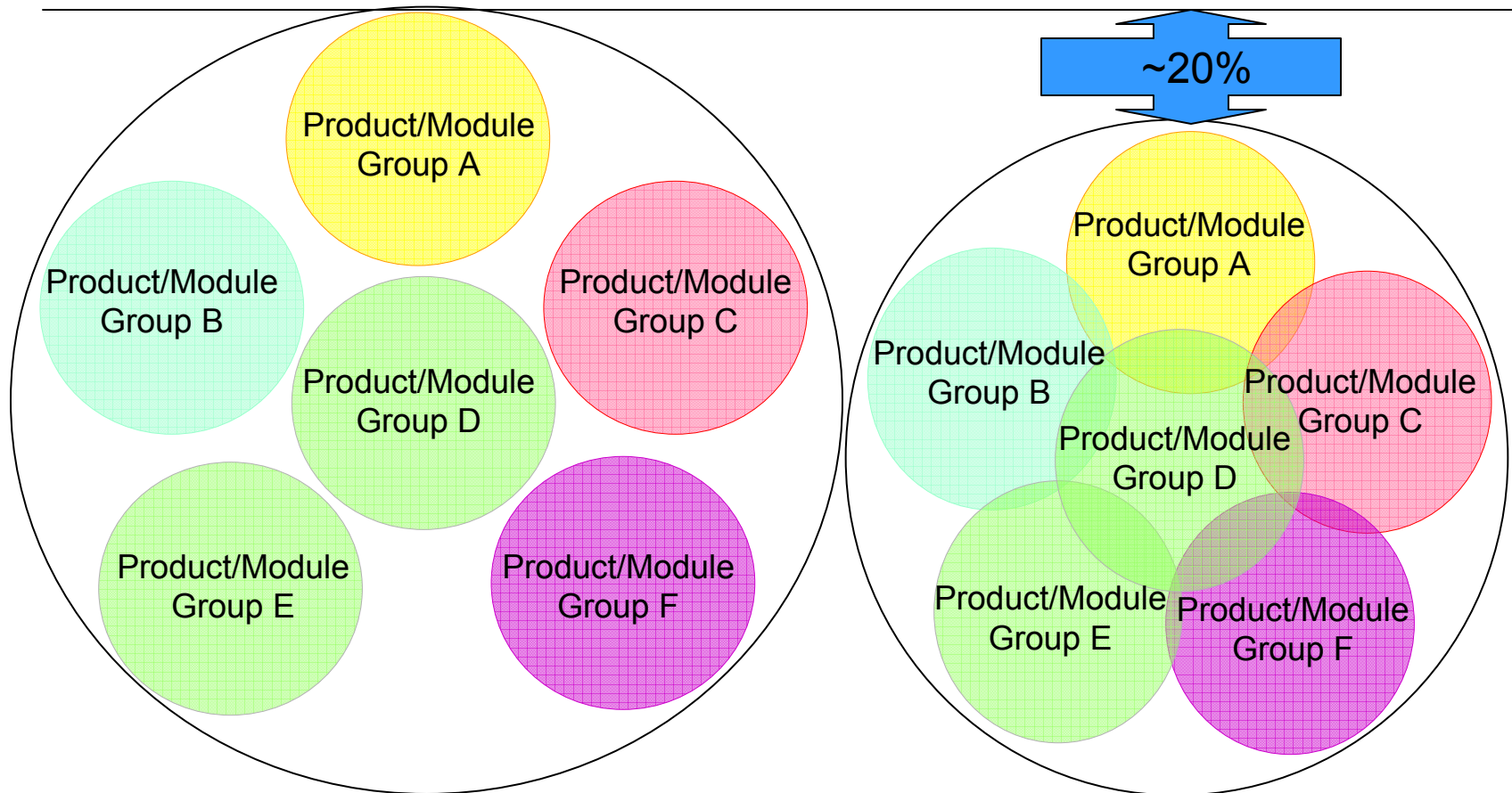
Senior



Skill Overlap Concept



Efficiency/Capacity Increase



The Solution (the typical reengineering)

- Hybrid support model can be implemented by most organizations
- SBR can be implemented even in small organizations
 - ✓ Get the call to the right person - as quickly as possible
 - ✓ Maximize 'first contact resolution' (FCR)
- Most organizations can improve efficiency by 10-20% or more

Approach: Small Sub-Projects



- Phase I teams...
 - ✓ Skill Definition
 - ✓ Process/Workflow Design
 - ✓ Physical Design
 - ✓ Career Path
 - ✓ Troubleshooting Tools
 - ✓ Communications
 - ✓ Change Management
- Phase II teams...
 - ✓ Phone/ACD & CRM
 - ✓ Training
 - ✓ Performance Measurement
 - ✓ Knowledge Management
 - ✓ Development-Support Relationship
 - ✓ Premium Support Program
 - ✓ And possibly others...

Note: Example only – not intended to be recommended approach.

6 – 12 months

Customer Support Reengineering
 Preliminary Project Plan **VERSION 3**

Task	Apr				May				Jun				Jul				Aug				Sep				Oct				Nov				Dec				Jan				Feb				Mar							
	week #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51
Skill Category Team	[Yellow]																																																			
Work Flow Design	[Yellow]																																																			
SBR/Final Phone Design Team																						[Yellow]																														
CareerPath/Training Team	[Cyan]																																																			
WFM Team	[Yellow]																																																			
Communications	[Cyan]																																																			
Change Management	[Cyan]																																																			
RNT Team									[Yellow]																																											
Performance Metrics																			[Yellow]																																	
Premium Support													[Yellow]																																							
Knowledgebase																						[Yellow]																														
Dev-Support Team																						[Yellow]																														

-  = Specific Task Team (estimated duration)
-  = Throughout Project

Skills Definition

- This is the foundation
- Make sure team is 'best & brightest'
- Assumptions:
 - ✓ Not every agent can handle any call (equally)
 - ✓ Getting the right call to the right agent provides many benefits
 - ✓ Once we have the skills definition, we can design the supporting structure
- We are NOT designing an IVR (yet)

Skill Definition

- Design from the agent perspective
 - ✓ Not for the customer & not for an IVR
- Goal is to organize to maximize resolution and minimize handle time
- Best approach is several working sessions and then 1-2 day workshop

Skill Definition

- Step 1 – Create list of all the ‘reasons’ or ‘types of calls’ that customers call about.
- Techniques:
 - ✓ Brainstorm reasons/types
 - ✓ Ask, “When you talk about the kind of call...”
 - ✓ Play: If you were the call router...

Skill Definition

- Example
 - ✓ 3 basic groups – anyone can get any call
 - ✓ People ‘graduate’ from one group to another
 - ✓ FCR = ?
- Result
 - ✓ Separated 3 groups into 4 basic categories
 - ✓ Came up with 38 separate call types

Skill Definition

- Step 2 – Look at the list from several perspectives – consider possible groupings
- Techniques:
 - ✓ Create “Easy, Medium, Hard” matrix
 - ✓ Discuss which skills ‘naturally’ go together
 - ✓ Discuss which calls/problems require similar background or technical skill (i.e. database)
 - ✓ Group and re-group; move things in and out of buckets; merge and separate – until it seems right!

Skill Definition

- Example/Result
 - ✓ 4 x 4 matrix (gen. categories x difficulty)
 - ✓ 38 call types into 14 groupings (16 minus 2)
 - ✓ Then 14 to 9
 - ✓ Then 9 to 12
 - ✓ Then 12 to 10
- Final result is 10 'skill groups' that each contain 3-4 'call types'
 - ✓ Groups cut across original 4 categories

Skill Definition

- Step 3 – Test the logic
 - ✓ Does each grouping make sense from a training standpoint?
 - ✓ Is it reasonable that someone could handle any call within that grouping?
- There is no single right answer!

Skill Definition: Benefits

- Calls are more likely to get to 'best skill'
- Handle time is reduced
- FCR is increased
- Escalation/Transfer is reduced
- Customers get better service
- Agents are more successful
- Initial training time may be shortened
- Agents become productive sooner
- Increases organizational capacity

Designing Phone/IVR Menus

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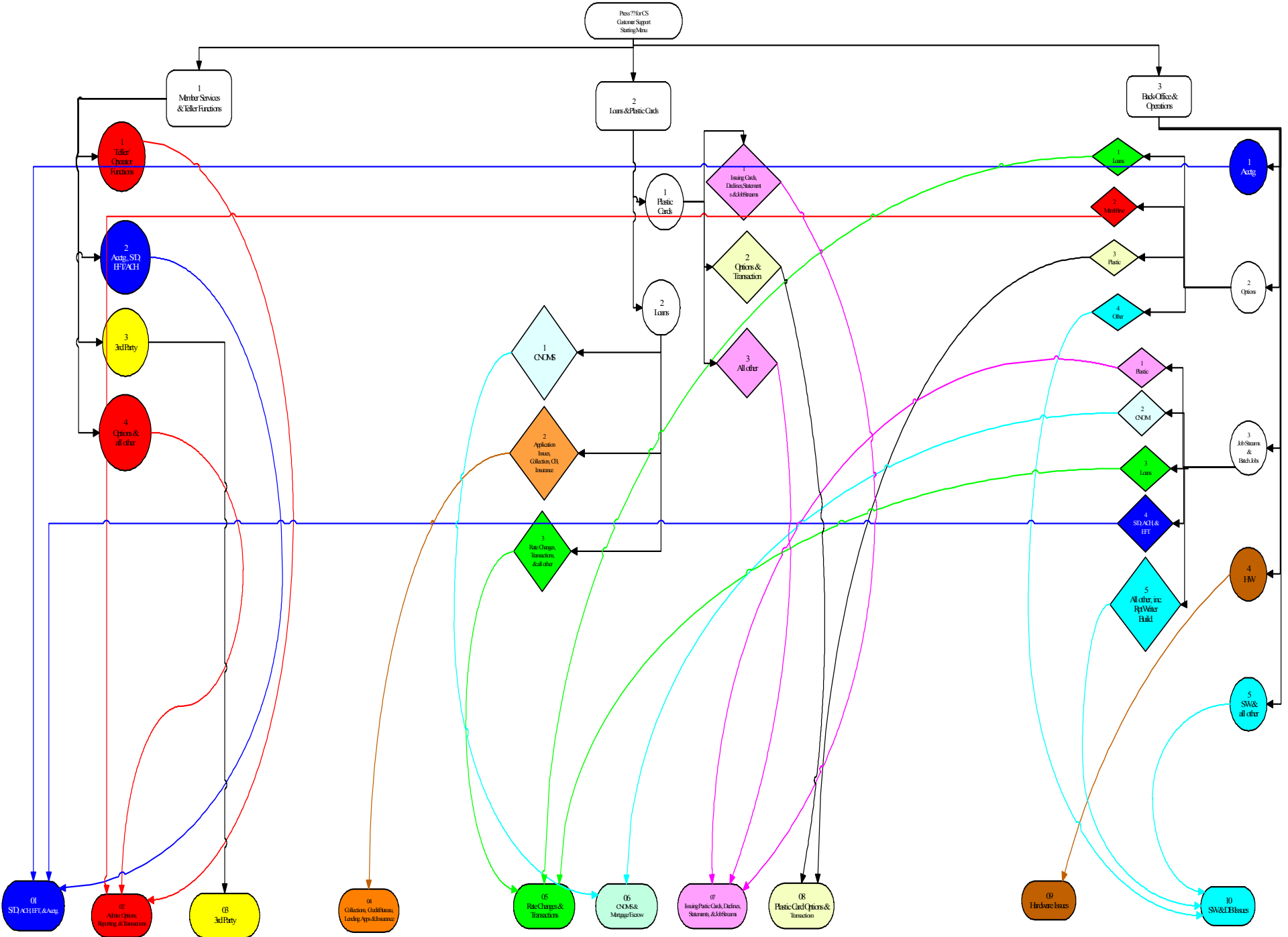
**"Thank you for calling Customer Service.
If you're calm and rational, press 1.
If you're a whiner, press 2.
If you're a hot head, press 3...."**

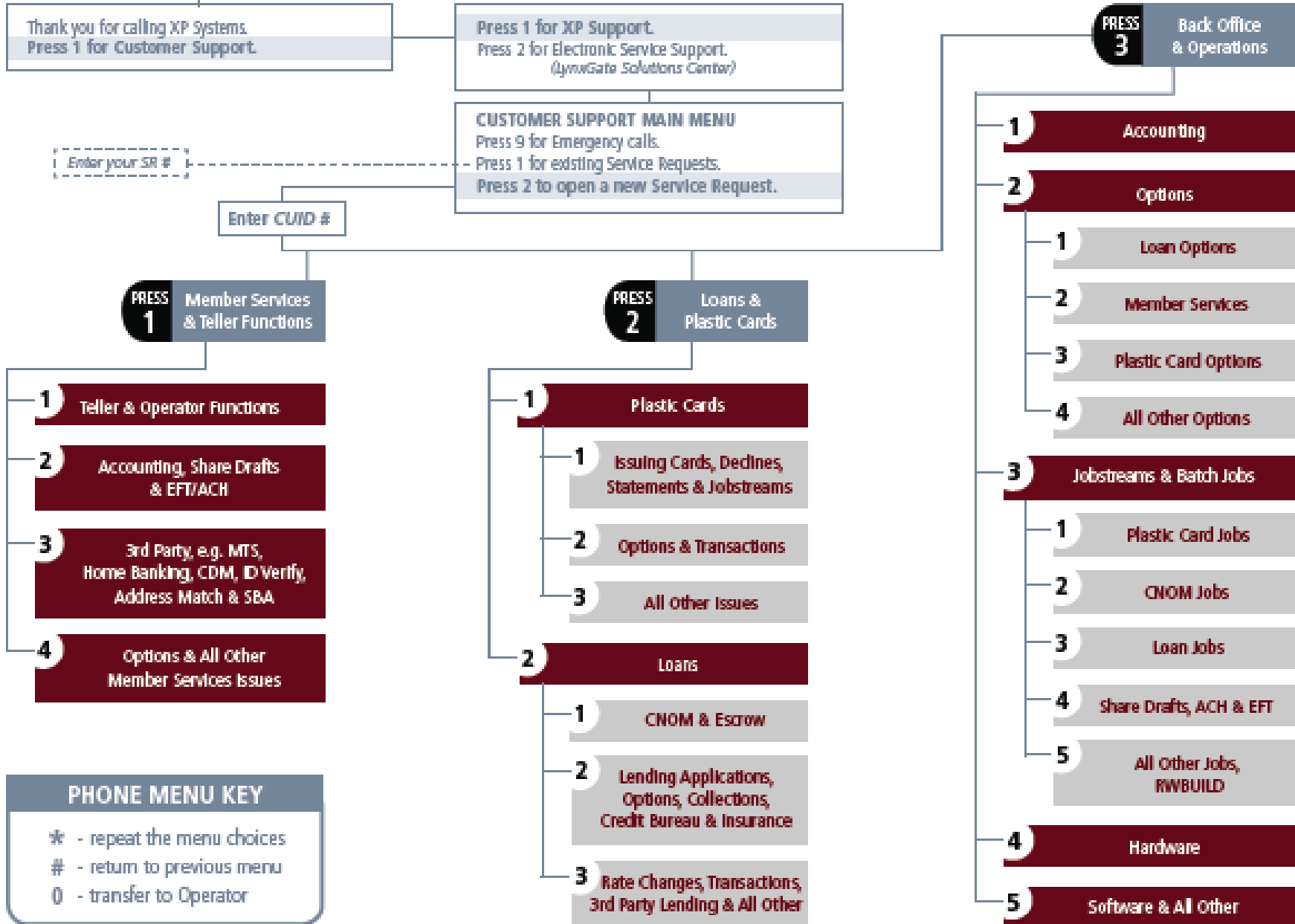
Menu/IVR

- From the customer's POV
 - ✓ “Think like a customer”
 - ✓ Use the initial list of ‘reasons’
 - ✓ Must navigate into final ‘skill buckets’
- Guidelines:
 - ✓ 3 levels/menus (max)
 - ✓ 6 choices/options (max)
 - ✓ Less is better

Menu/IVR

- How?
 - ✓ Agents know customers
 - ✓ Trial & error
 - ✓ If you were receptionist...
- Remember, we're not trying to troubleshoot!
 - ✓ Ask enough to route to correct skill
- Get customers to review!
- Let's look at a few examples...





PHONE MENU KEY

- * - repeat the menu choices
- # - return to previous menu
- 0 - transfer to Operator

Welcome to the Ontario Systems Product Support Center.

Please enter your client number, followed by the pound sign.

Please state your name after the tone.

If you are calling concerning an existing investigation, Press 1.

Otherwise, Press 2.

You can report a "down system" by dialing "911" at anytime during this announcement.

If you're calling to follow up on an existing investigation you will need to know the investigation number.

If at any point you are uncertain of your selection, you can choose any option and a support consultant will help direct your call to the appropriate queue.

Direct path shortcuts are available by entering the appropriate path. For example, entering 1,2,2 would direct your call to the dialer management queue.

Main Menu

Please select from the following five (5) options.

If your call is concerning one of the telephony products, such as the dialer or Signature IVR, Press 1.

If your call is concerning a Link service, or information on a Link vendor, Press 2.

If your call is concerning database, operating system administration or system hardware, Press 3.

If your call is concerning a CT Vision process, Press 4.

If your call is concerning a FACS process, Press 5.

To have any menu repeated, Press 8. To back up to the previous menu, Press 9.

1

Telephony Support

You are in the
Telephony Support Menu

If your dialer is down, Press 1.

If you have a support issue or general question about the dialer, Press 2.

You are in the Dialer Support Menu

For dialer systems parameters, including stopping/starting, area code/timezones and all other parameter issues, Press 1.

For collector issues, including logging on the dialer, throwing accounts, and all other collector issues, Press 2.

For dialer management issues, including pool building, dialer statistics and inbound setup, Press 3.

For Voice Trak, unattended messaging, CTView or GC Monitor, Press 4.

For dialer hardware issues, including new dialer setup, T1 or phone line issues, network connectivity, attendant stations or hardware issues, Press 5.

For any other dialer issues, Press 6.

If you have a support issue or general question about Signature (IVR), Press 3.

2

Link Menu

You are in the
Link Support Menu

For skip tracing issues, Press 1.

For letter vendor related issues, Press 2.

For issues related to retrieving credit report information on accounts, Press 3.

For all other Link related issues, Press 4.

3

SAS Menu

You are in the
Systems Administration
Support Menu

If your system is down, Press 1.

To schedule a new installation, upgrade or project, Press 2.

If your system is running windows, Press 3.

If your system is running UNIX, Press 4.

For all other operating systems, Press 5.

You are in the System Level Menu

For printer related issues, Press 1.

For space related issues including disk or storage configuration questions, Press 2.

For backup issues, Press 3.

For connectivity issues including file transfer, or user access to the server, Press 4.

For issues relating to error troubleshooting or system performance, Press 5.

For all other issues, Press 6.

4

CT Vision

You are in the
CT Vision Support Menu

If you have issues with windows, user management or Event Tactics, Press 1.

For reports, letters, console messages or spooled reports issues, Press 2.

For database, menu or night job issues, Press 3.

For imports, exports and account issues, Press 4.

For Logic Blocks, errors and phase template issues, including workflow issues, Press 5.

For all other issues, including SQL, Press 6.

5

FACS

You are in the
FACS Support Menu

For financial issues, including cash, statements and statistics, Press 1.

For data processing issues, including Enable and tape formats, Press 2.

For account flow issues, including Event Tactics, tying and assignment, Press 3.

For system management issues, including client maintenance, Press 4.

For all other FACS related issues, including SQL, Press 5.

1. Financial

Debit Cash
Client Cash
Statements
Check Writer
General Ledger
Rate Tables

Interest
Month End
Processing
Statistical
Reports

2. Data Processing

Enable
Tape Processing
Credit Reporting
Custom Formats

3. AccountFlow

Assignment
Cancel
Print
Print Tactics
Letter Service
Transfer
Forward
Return Mail

Tx
Letter
Report Writer
New Business
Route/Dept.
Field Lists
Logic Blocks

4. System Management

ISM Backup
Space Cleanup
Night Jobs
Client Master
User Defined
Window Tables
Remote Inquiry

User Maintenance
Printer Control
Groups
FACS Locks
Spool File
System Options
Console Message

5. Other

Focus
SICK
Client Compliance
Commercial
GAR
DSO

FACS Word
SQL
Scripting
Legal
ARC
Undefined Error

Main Menu:

- For NetIQ's WebTrends Web Analytics products, **Press 1**
- For Performance and Availability products, such as AppManager and SQL Tools, **Press 2**
- For Administration products, such as Directory and Resource Administrator, File Security Administrator, or Group Policy Products, **Press 3**
- For Security products, such as VigilEnt products and Firewall Reporting Products, **Press 4**
- For Network Testing products, such as Chariot and Vivinet Assessor, **Press 5**
- For Migration products, such as Domain Migration Administrator and Exchange Migrator, **Press 6**
- For a complete product listing, **Press 0**

1

For Web Trends Log Analyzer, WebTrends Analysis Suite, WebTrends Reporting Center and WebTrends Live, Press 1

For WebTrends Intelligence Suite and SmartSource Data Collector, Press 2

[Go to Page 2 ...](#)

2

For AppManager, Press 1

For AppAnalyzer, Press 2

For Vivinet Manager, Press 3

For ConfigurationManager for SQL Server, RecoveryManager for SQL Server and DiagnosticManager for SQL Server, Press 4

For XMP Modules for Microsoft Operations Manager 2000, Press 5

For End2End, Press 6

[Go to Page 2 ...](#)

3

For VigilEnt User Manager, Press 1

For All Other Admin Products such as Directory and Resource Administrator, File Security Administrator, or Group Policy Products, Press 2

[Go to Page 2 ...](#)

4

For VigilEnt Security Agents such as iSeries or Unix, Press 1

For VigilEnt Enterprise Products such VigilEnt Security Manager or Policy Center, Press 2

For Security Manager and Operation Manager, Press 3

For Firewall Suite and Security Reporter Center, Press 4

For Security Analyzer, Press 5

For Marshal Content Security Products, Press 6

[Go to Page 3 ...](#)

5

For Registration and Licensing, Press 1

For results interpretation, reports or data analysis, Press 2

For CHR, Assert, or Event Errors, Press 3

For Installation, Configuration, Upgrade, or Setup, Press 4

For user interface, functionality or design, Press 5

For all other issues, Press 6

** End of Options **

6

For Domain Migration Administration and Server Consolidator, Press 1

For Exchange Migrator, Press 2

For Netware Migrator, Press 3

For Configuration Assessor, Press 4

[Go to Page 3 ...](#)

Designing Phone/IVR Menus

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“At this time, we’d like to remind you to eat and drink at regular intervals. Thank you for continuing to hold.”

Data Collection: Why

- Data required to...
 - ✓ Produce a call forecast
 - ✓ Develop a high-level staffing plan
 - ✓ Create staff schedules
 - ✓ Simulate performance
 - ✓ Develop a training plan

Data Collection: What

- Data required...
 - ✓ Volume (calls & emails)
 - ✓ Handle time
 - ✓ First contact resolution (FCR)
 - ✓ Follow-up time (non-FCR)
 - ✓ Arrival Patterns
- By skill
- Need relational
 - ✓ at least AHT & FCR

Data Collection: How

- Existing systems
- Ticksheets
 - ✓ Manual
 - ✓ E-form
- E-Ticksheet

Data Collection: Analysis

3/22/2002	LINK	1	1				1			
Week	All									
Total	Groups	352	352	59	109	84	57	37	2456	4
			100%	17%	31%	24%	16%	11%	66.38	
				17%	48%	72%	88%	98%		
									15.67	

1st Contact Resolution by Group

		we 3/22	we 3/29	we 3/8	AVG.
FACS	139	45%	50%	56%	50%
SAS	35	36%	45%	35%	39%
GC	106	74%	75%	72%	74%
CTV	42	51%	57%	54%	54%
LINK	30	42%	51%	48%	47%

Average minutes if
31+

Data Collection: Analysis

03/08/02	SAS	1	1			1		
03/08/02	SAS	1	1			1		
03/08/02	SAS	1	1				1	
03/08/02	SAS	1	1			1		
TOTALS	ALL	413	413	64	146	106	52	41
%				15%	35%	26%	13%	10%
Cum. %				15%	51%	77%	89%	99%

1st Contact Resolution by Group		
FACS	192	56%
SAS	51	35%
GC	95	72%
CTV	46	54%
LINK	29	48%

Check Sum	413
-----------	-----

77% of
1st contact
resolutions
happen in 20
minutes or less!

89% of
1st contact
resolutions
happen in 30
minutes or less!

15.2058

Data Collection: Analysis

3/29/02	SAS	1	1					1	97
3/29/02	SAS	1	1				1	0	
3/29/02	SAS	1	0					1	45
3/29/02	SAS	1	0			1		0	
3/29/02	SAS	1	1				1	0	
TOTALS	ALL	652	350	94	170	150	122	116	9,646

14% 26% 23% 19% 18% 83
 54% 14% 40% 63% 82% 100%

Incoming Volume by Group		
FACS	261	40%
SAS	164	25%
GC	104	16%
CTV	86	13%
LINK	37	6%

Overall
1st Contact
Resolution

Overall
Weekly Volume
(New)

Average minutes
if 31+

Data Collection: Analysis

1st Contact	Follow-up/Research	< 10 minutes	11-20 min.	21-30 min.	>30 min.	If greater than 30, then enter total time here	Yes	No
1,730	0	897	464	191	178	10,166	1,318	412
% Calls		52%	27%	11%	10%	57	78%	24%
Minutes		8,073	8,352	5,157	10,166	31,748		
% Minutes		25%	26%	16%	32%			
Cummulative		25%	52%	68%	100%			

Ultimate Goal

- Determine (by skill/queue):
 - ✓ Incoming (new case) volume
 - ✓ AHT for FL based on defined 'limits'
 - ✓ FCR based on limits
 - ✓ Amount of BL work
 - Volume
 - AHT

The Key to Success

- Secret is to dissect the calls
- Initial call handling
versus
- Follow-up/research
- Point of diminishing return
- Design the process to optimize each step!

Predict Performance

- Data used for preliminary staffing model
- Determine headcount required
 - ✓ Frontline
 - ✓ Backline
 - ✓ Overall (based on other factors)
- Let's do some staffing math!!

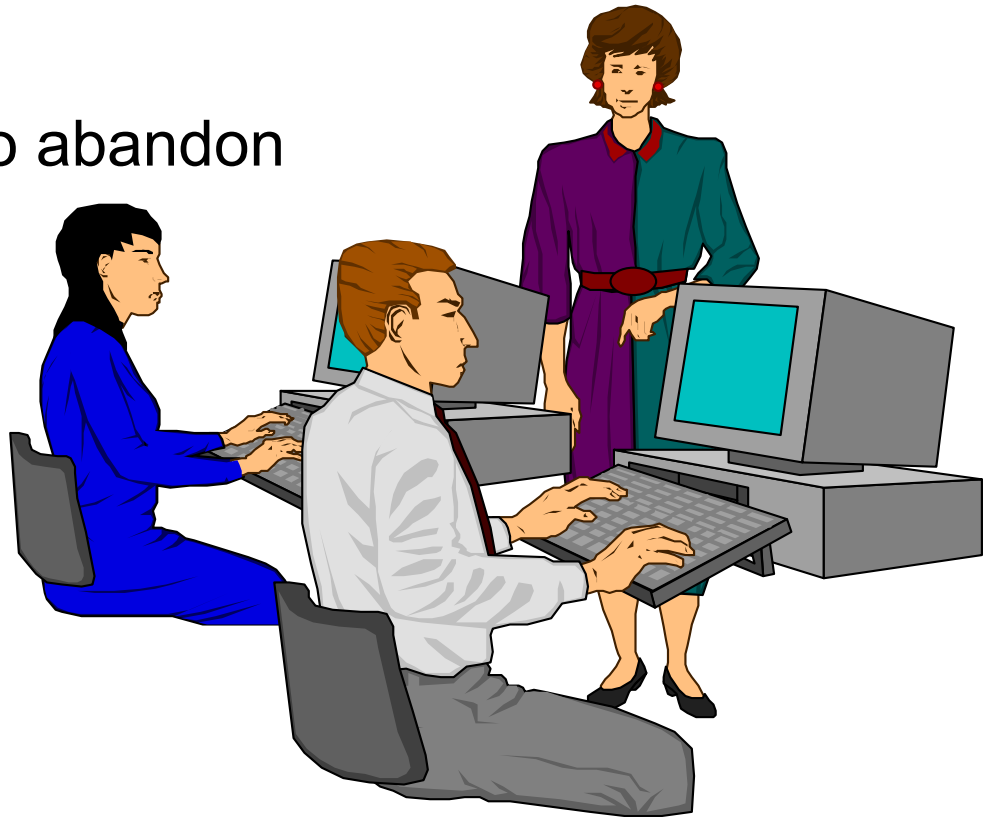
Q. Do I need to learn complex equations?

YES.

$$\sum_{n=0}^{q-1} \frac{-\prod_{i=0}^n (s\mu + i\alpha)}{n! \alpha^n} \int e^{-s\mu t} (1 - e^{-\alpha t})^n dt \left[\prod_{i=0}^n (s + \frac{i\alpha}{\mu}) \right] \left[\sum_{i=0}^{q-1} \frac{a^i}{\prod_{k=0}^i (s + \frac{k\alpha}{\mu})} \right]$$

Q. What is Erlang?

- Since 1917
- Infinite demand, Queued, FIFO
 - Flaw: Assumes no abandon
- Erlang = Load



Why Erlang-C Tables?

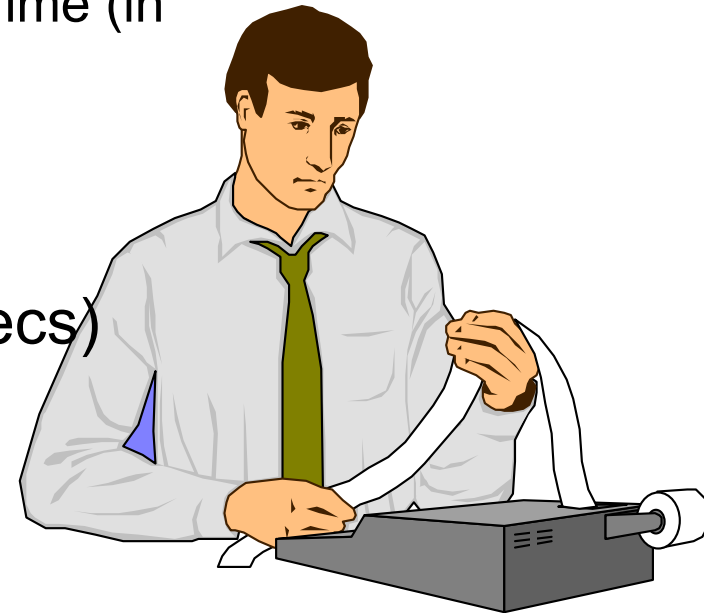
- There are very few inputs to the equations
 - Call Volume (by hour)
 - AHT (talk time + wrap-up)
 - Service target
- No software or other tools are required
- Good for small/medium support centers

Note: You cannot use “X % of calls picked up in Y seconds” when using the tables (manual method)

Calculating Erlang

An “Erlang” is a unit of measure,
comparable to Ohms or Gallons

- Determine Average Handle Time (AHT)
= Average Talk Time + Average Wrap-up Time (in minutes or seconds)
- $AHT \times \text{Hourly Volume} = \text{Load}$
 - ✓ Use Peak Hour
- $\text{Load} \div 60$ (for minutes or 3600 for secs)
= Erlangs



Determine a viable Service Level Target

- Traditional is ASA
 - Flaw is “averaging”
 - Used with Erlang C Tables
- Service Level becoming more popular
 - Provides better picture
 - Most ACDs can report
 - Erlang utilities calculate
- Best when combined

8 Steps to Accurate Staffing

Step 1: Calculate workload (in Erlangs)

20 calls x 15 min. AHT = 300

$300 / 60 = 5.0$ Erlangs

Step 2: Determine ADDC **factor**

Don't want customers to wait more than 6 minutes

$6 / 15 = .40$ ADDC

8 Steps to Accurate Staffing

Step 3: Locate load in Erlang C Tables

Find 5.0 Erlangs in column 1

Erlang C Tables			
Workload (in Erlangs)	Staffing Level	Delayed Portion	Average Delay of Delayed Calls
5.0	6	0.5875	1.0000
5.0	7	0.3241	0.5000
5.0	8	0.1673	0.3330
5.0	9	0.0805	0.2500
5.0	10	0.0361	0.2000
5.0	11	0.0151	0.1667
5.0	12	0.0059	0.1429
5.0	13	0.0021	0.1250

8 Steps to Accurate Staffing

Step 4: Locate 1st row \leq ADDC factor

Find .40 or less in column 4

Erlang C Tables			
Workload (in Erlangs)	Staffing Level	Delayed Portion	Average Delay of Delayed Calls
5.0	6	0.5875	1.0000
5.0	7	0.3241	0.5000
5.0	8	0.1673	0.3330
5.0	9	0.0805	0.2500
5.0	10	0.0361	0.2000
5.0	11	0.0151	0.1667
5.0	12	0.0059	0.1429
5.0	13	0.0021	0.1250

8 Steps to Accurate Staffing

Step 5: Note coinciding staffing level

Staffing = 8

Erlang C Tables			
Workload (in Erlangs)	Staffing Level	Delayed Portion	Average Delay of Delayed Calls
5.0	6	0.5875	1.0000
5.0	7	0.3241	0.5000
5.0	8	0.1673	0.3330
5.0	9	0.0805	0.2500
5.0	10	0.0361	0.2000
5.0	11	0.0151	0.1667
5.0	12	0.0059	0.1429
5.0	13	0.0021	0.1250

8 Steps to Accurate Staffing

Step 6: Identify Delayed Portion %

.1673 (17% will be delayed)

Erlang C Tables			
Workload (in Erlangs)	Staffing Level	Delayed Portion	Average Delay of Delayed Calls
5.0	6	0.5875	1.0000
5.0	7	0.3241	0.5000
5.0	8	0.1673	0.3330
5.0	9	0.0805	0.2500
5.0	10	0.0361	0.2000
5.0	11	0.0151	0.1667
5.0	12	0.0059	0.1429
5.0	13	0.0021	0.1250

8 Steps to Accurate Staffing

Step 7: Calculate ADDC

ADDC will be .33 (times the AHT)
or 5 minutes

Step 8: Calculate ASA

.33 ADDC x .17 delayed x 15 min. AHT
= .84 minutes or 51 seconds

What does that tell us?



- Staffing level (8@peak)
- % of calls delayed (17%)
- % of calls not delayed (83%)
- ADDC (5 minutes)
- ASA (51 seconds)

What else can we determine?

- What if...
 - ✓ Reduced staffing by 1?
 - ✓ Volume increased?
 - ✓ AHT increased/decreased?
- What if...
 - ✓ We combined or split groups?



How does combining queues effect staffing?

Step 1: Determine staffing requirements of the two separate groups

Step 2: Estimate AHT for combined groups using weighted average formula

Step 3: Recalculate staffing requirement to meet the target service level using the combined workload estimate

Sample Staffing Model

ACME Software: Preliminary Staffing Model

ASSUMPTIONS (Call Center Oriented)						
Queue/Path Names	Queue #	Daily Volume	% of total	AHT (min)	Resolve Rate	Flw-up (min)
Queue #A	A	30	3%	8.0	95%	60
Queue #B	B	300	30%	13.0	95%	60
Queue #C	C	140	14%	18.0	95%	60
Queue #D	D	200	20%	17.0	85%	60
Queue #E	E	300	30%	17.0	85%	60
Queue #F	F	20	2%	18.0	90%	60
N/A	G		0%	0.0	0%	0
N/A	H		0%	0.0	0%	0
N/A	I		0%	0.0	0%	0
N/A	J		0%	0.0	0%	0
		990	100%			

Traffic by Hour		New Calls	Tech Staffing Rqmt.	
Hour	%		Merlang	
8-9AM	5.0%	50	17	
9-10AM	7.0%	69	22	
10-11AM	10.5%	104	32	
11AM-Noon	12.0%	119	36	
Noon-1PM	9.0%	89	28	
1-2PM	9.0%	89	28	
2-3PM	12.0%	119	36	
3-4PM	10.5%	104	32	
4-5PM	9.0%	89	28	
5-6PM	7.0%	69	22	
6-7PM	5.0%	50	17	
7-8PM	4.0%	40	14	
N/A		0	0	
N/A		0	0	
	100%	990	312	

(Man-hrs Required)

Call Center Basics	
Avg. CC hrs. per person	5.7
Weighted AHT (in seconds)	940.6
Daily Volume (new incidents)	990
	X% Y secs.
Service Level Target	80% 60

ASSUMPTIONS (Non-call center work)	
% Calls passed to 2nd level	10%
Daily Volume (2nd level calls)	100.5
Weighted Avg. Handle Time (hrs)	1.0
Non-Call Ctr. Hrs/person	1.8

ASSUMPTIONS (Additional Staffing Requirements)	
Sick/Vacation Factor	8%
Training Factor	4%
Management/Supervision	10%
Administrative Support	5%
Other Overhead/Shrinkage Factor	0%

Enter data from Merlang (or Erlang) calculations (outside process)..AFTER other data files completed!

Staff Required	
Headcount for CC coverage	55
Headcount for follow-up work	56
Greater of 2 requirements	56
Other Staffing (frm other sheet)	0
Sick/Vacation/Other coverage	6
Total Direct Staff	62
Overhead Staffing (Mgmt/Admin/Other)	9
Total Staff Required	71

WFM Alternatives for Small-Medium Support Centers

- ASP Model
- Spreadsheet & Erlang-type calculator
- A new option will be on market “soon”
 - ✓ Subscribe to our newsletter to be notified

Skills Inventory: What and Why

- Determine the skill profile of each individual agent
- Necessary to...
 - ✓ Program ACD for SBR
 - ✓ Develop SB staffing schedule
 - ✓ Identify skills gaps & create training plan

Skills Inventory: How

- Agent Self-Ranking (survey)
 - ✓ Expertise scale can vary
 - ✓ Rank each new skill
 - ✓ Possibly break down skill to components
- Results to be confirmed by management

Skills Inventory: Sample Survey

PLEASE RATE YOUR EXPERIENCE IN THE DATABASE REPORTING SKILLSET:

	Expert	Intermediate	Novice	Unskilled
RWDB - Running RWBUILD (Required)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
RWDB - Creating and Running RWSPEC's (Required)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
RWDB - Running QwikWriter (Required)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Using Crystal Reports (Required)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
DB2 Reporting (Required)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Using Data Explorer - New version (Required)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Data Explorer - Old version (Required)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
API usage (Required)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
FEECALC (Required)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
DBUPDATE (Required)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Skills Inventory: Sample Results

Technical Skills Survey

Aaron Bellamy Gordon Shadle John Aubuchon Joyce Young Martin Fay Pete Aosta Ryan Ballot

Technical Foundation Skillset										
Hardware Components	Intermediate	Intermediate	Expert	Novice	Intermediate	(pending)	Intermediate			
General PC Hardware & Software knowledge	Intermediate	Intermediate	Expert	Novice	Intermediate	(pending)	Expert			
General Network Knowledge	Intermediate	Intermediate	Expert	Novice	Intermediate	(pending)	Intermediate			
Technical Diagnostic Skills	Intermediate	Intermediate	Expert	Novice	Intermediate	(pending)	Expert			
Basic RISC Operations Knowledge	Intermediate	Intermediate	Expert	Novice	Intermediate	(pending)	Expert			
Tape Drives	Intermediate	Intermediate	Expert	Novice	Intermediate	(pending)	Expert			

Create Staffing Model and Preliminary Schedule

Staffing Requirements

Frontline Hourly Staffing Requirements

HOUR	Total Staff	Queue												
		A	B	C	D	E	F	G	H	I	J	K	L	0
7AM	8	1	0	1	0	1	1	1	1	1	1	0	0	0
8AM	22	3	1	2	0	2	3	2	1	2	4	1	1	0
9AM	34	4	1	4	1	4	4	3	2	2	6	1	2	0
10AM	38	5	1	4	1	4	5	3	2	3	7	1	2	0
11AM	37	5	1	4	1	4	4	3	2	3	7	1	2	0
12PM	30	4	1	3	0	3	4	3	2	2	6	1	1	0
1PM	34	4	1	4	1	4	4	3	2	2	6	1	2	0
2PM	34	4	1	4	1	4	4	3	2	2	6	1	2	0
3PM	30	4	1	3	0	3	4	3	2	2	6	1	1	0
4PM	26	3	1	3	0	3	3	2	2	2	5	1	1	0
5PM	18	2	1	2	0	2	2	2	1	1	3	1	1	0
6PM	12	1	1	1	0	1	1	1	1	1	2	1	1	0
7PM	10	1	1	1	0	1	1	1	1	1	1	0	1	0
8PM	6	1	0	1	0	1	1	1	0	0	1	0	0	0
	339	42	12	37	5	37	41	31	21	24	61	11	17	0

Create Staffing Model and Preliminary Schedule

Legend

	Frontline Staffing required
	Scheduled work shift
	Frontline work schedule
	Lunch

Frontline Schedule V4

Skill Required	Start Time	Lunch	Hour 1 5AM	Hour 2 6AM	Hour 3 7AM	Hour 4 8AM	Hour 5 9AM	Hour 6 10AM	Hour 7 11AM	Hour 8 12PM	Hour 9 1PM	Hour 10 2PM	Hour 11 3PM	Hour 12 4PM	Hour 13 5PM	
Apps																
Apps																
Apps																
Ginean Williams	5:00 AM	9:00 AM	5 - 7													
Demetrious Dargan	6:00 AM	10:00 AM			7 - 9					11 - 12						
Erica Henderson	6:30 AM	11:00 AM			7 - 9					11 - 12				12 - 2		
Sean Alva	6:30 AM	10:30 AM			8 - 10					11 - 12				12 - 2		
Christina Smith	7:00 AM	11:00 AM			8 - 10					10 - 11				12:30 - 2:30		
Lynn Peraza	7:30 AM	11:30 AM			9 - 11					11 - 12:30				2 - 4		
Julio Porres	8:30 AM	12:30 PM			9 - 11					11 - 12:30				2 - 4		
Thomas Henschel	9:00 AM	1:00 PM			9 - 11					11 - 12:30				4 - 6		
Jennifer Aguinaldo	9:00 AM	1:00 PM			9 - 11					11 - 12:30				4 - 6		
Christopher Day	6:00 PM															

Skill Required	Start Time	Lunch	5AM	6AM	7AM	8AM	9AM	10AM	11AM	12PM	1PM	2PM	3PM	4PM	5PM	
Loan																
Loan																
Loan																
Nancy Schumacher	5:00 AM	9:00 AM	5 - 7													
Thomas Carnes	6:00 AM	10:30 AM			7 - 9					11 - 12				2 - 3		
Mike Burau	6:30 AM	10:30 AM			7 - 9					11 - 12				2 - 3		
Jason Tielman	7:00 AM	11:00 AM			7 - 9					11 - 12				12 - 2		
Christi Moore	8:30 AM	12:30 PM			9 - 11					11 - 12				3 - 4		
Melanie Jackson	8:30 AM	12:00 PM			9 - 11					11 - 12				3 - 4		
Valerie Jacobellis	9:00 AM	1:00 PM			9 - 11					11 - 12				4 - 6		

Training Plan

- New training program must match new skill groups
 - ✓ If current training exists, this is just reconfiguration
- ‘Schedule requirements’ versus ‘skills inventory’
 - ✓ Typically not a huge issue!
 - ✓ Highlights weak spots
- Training in new policy, procedure, & changes in tools

Phone/ACD

- Typically one of the more complex components
- Many variations on approach and capability for SBR
- SBR can often be implemented even when vendor says it is not a feature

Skills-Based Routing Concept



Calling for
Product/Module
A, B, or C?

Selects Product A

Selects from 2nd menu of reason for call

Easiest
Calls:
Queue A

Easy/Medium
Calls:
Queue B

Medium/Hard
Calls:
Queue C

Most
Complex
Calls:
Queue D

Junior

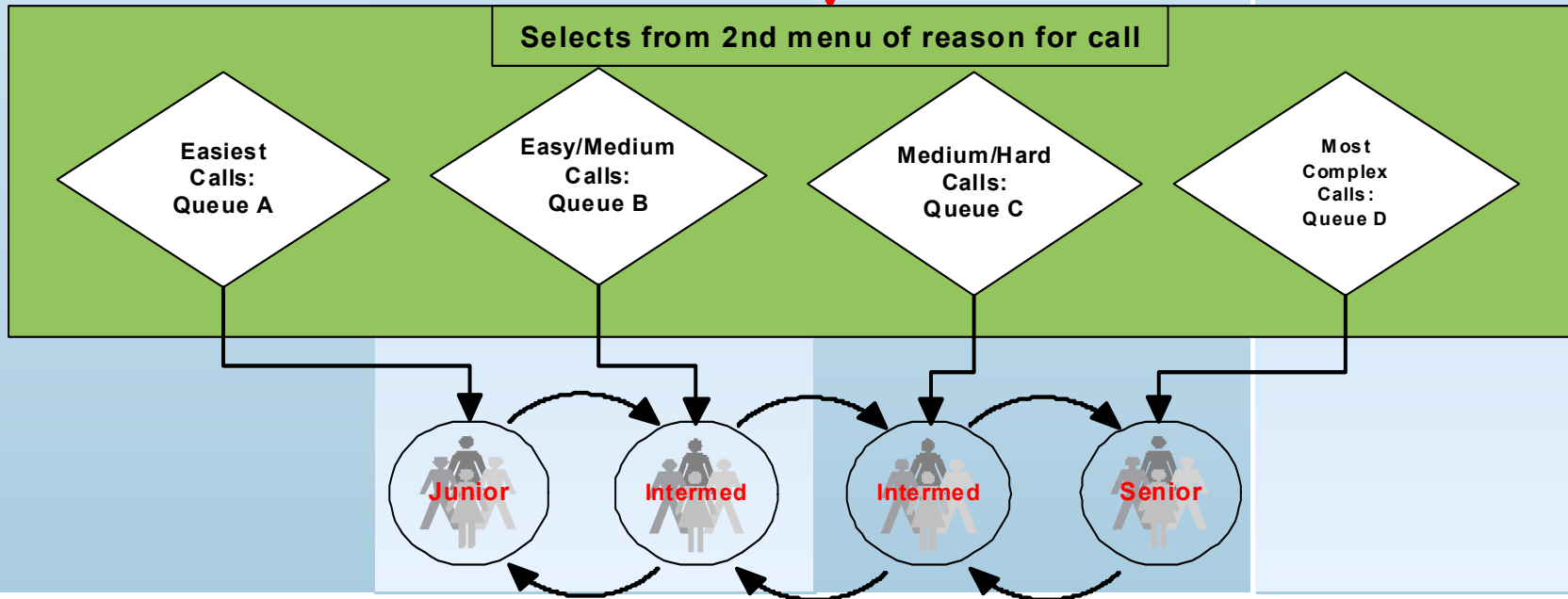
Intermed

Intermed

Senior

BASIC SBR:

- > Calls are routed to target queue.
- > If no agent available, calls overflow to secondary queue.
- > Agents are assigned to primary queue, but get calls that overflow in.



Skills-Based Routing Concept



Calling for
Product/Module
A, B, or C?

Selects Product A

INTERMEDIATE SBR:

- > Calls are routed to target queue.
- > If no agent available, calls overflow to secondary multi-skilled queue.
- > Single-skilled agents are assigned to primary queues and multi-skilled agents are assigned to secondary/overflow queues

Selects from 2nd menu of reason for call

Easiest
Calls:
Queue A

Easy/Medium
Calls:
Queue B

Medium/Hard
Calls:
Queue C

Most
Complex
Calls:
Queue D

Skill A

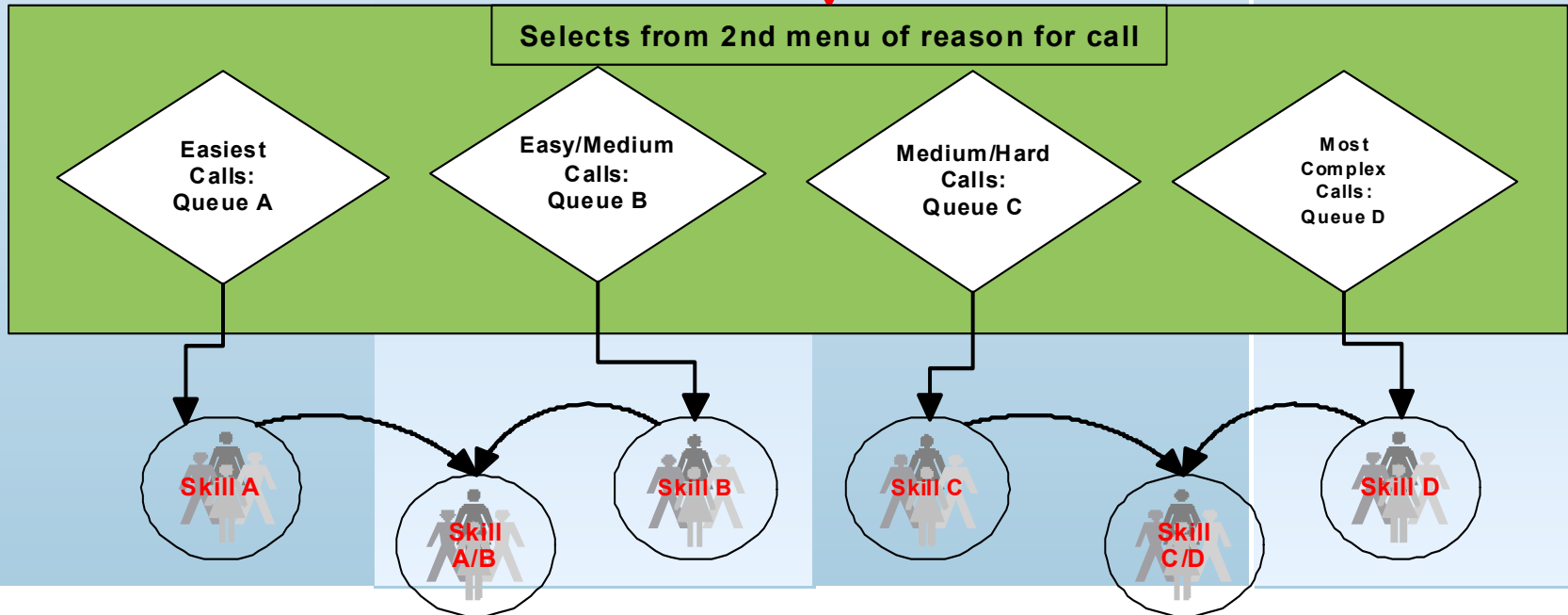
Skill
A/B

Skill B

Skill C

Skill
C/D

Skill D



Skills-Based Routing Concept



Calling for
Product/Module
A, B, or C?

Selects Product A

ADVANCED SBR:

- > Calls are routed to target skill/queue.
- > Each agent can have any combination of skills and priority/expertise per skill
- > System routes call to available agent with highest priority/expertise for the required skill

Selects from 2nd menu of reason for call

Easiest
Calls:
Queue A

Easy/Medium
Calls:
Queue B

Medium/Hard
Calls:
Queue C

Most
Complex
Calls:
Queue D

Agent 1

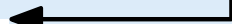
Skill A=3
Skill B=3
Skill C=2
Skill D=0

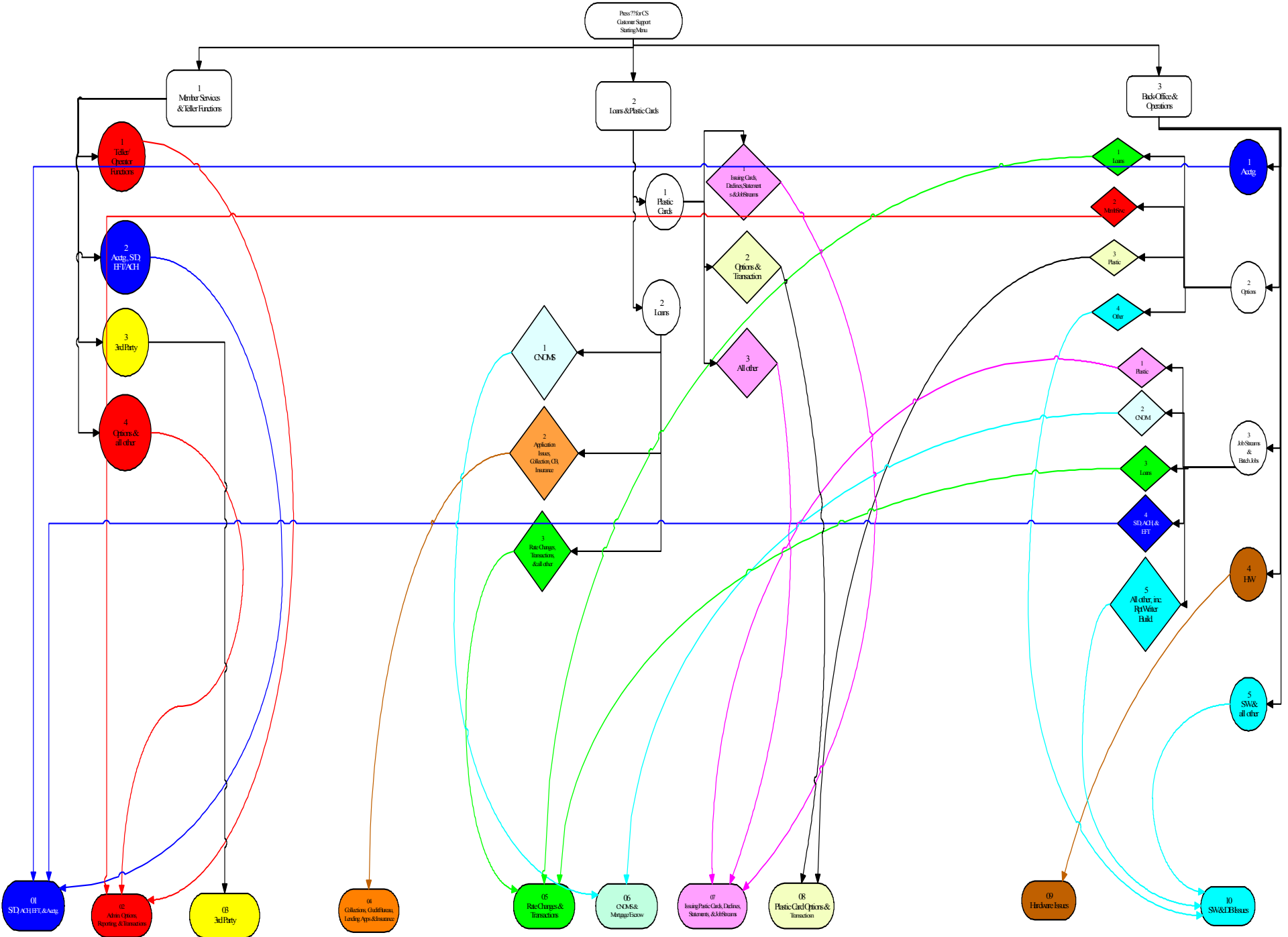
Agent 2

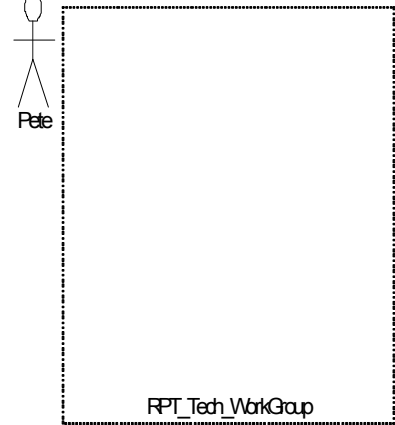
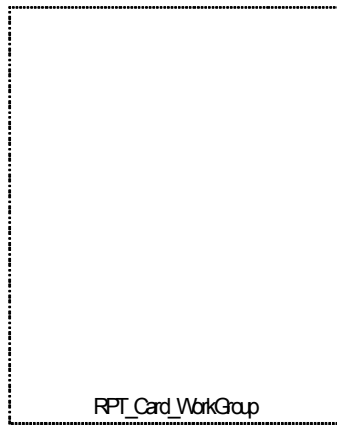
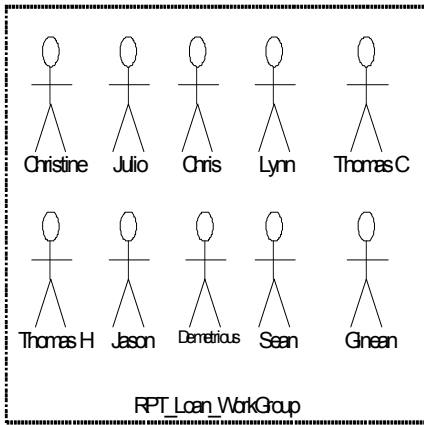
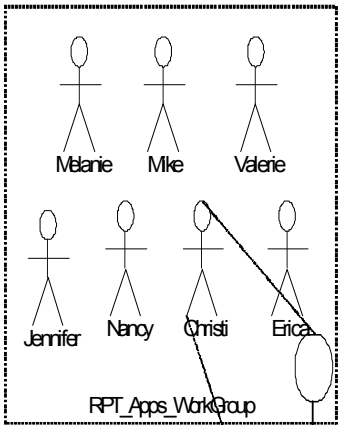
Skill A=2
Skill B=2
Skill C=3
Skill D=1

Agent 3

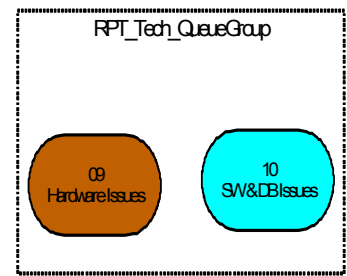
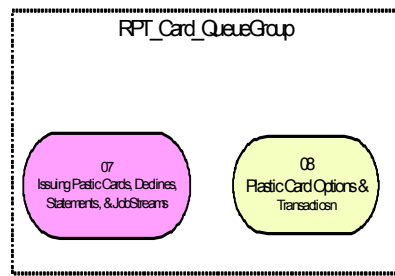
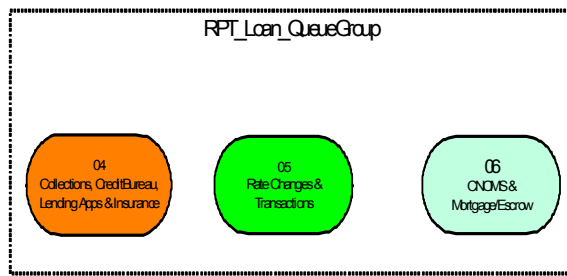
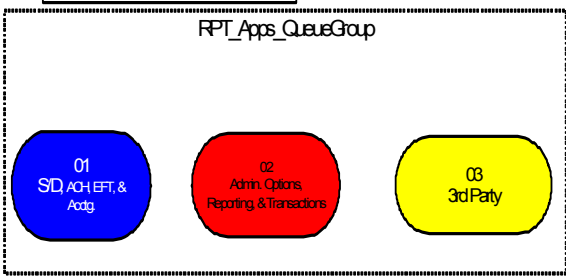
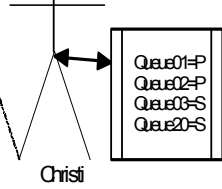
Skill A=2
Skill B=2
Skill C=2
Skill D=1







NOTE
 Each Agent (A) is a member of one WorkGroup (WG).
 Each Agent **must** be Primary (P) or Secondary (S) for every Queue related to that WG.
 Each A must be S for Overflow Queue (OFQ).



NOTE
 Each call that enters a Q will wait 45 seconds to be answered by a P/S agent.
 If not answered within 45 seconds, the call will escalate to the OFQ.

Are we there yet?

- Determined a call handling model
- Defined the 'skill groups' that form foundation
- Developed Phone IVR/Menu
- Collected data necessary for planning
- Determined total headcount and service level capability
- Developed skills inventory
- Determined SBR framework for implementation
- Created training plan
- Built staffing schedule

Comments and Questions?

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