

A Web Based Wireless Order Management Application

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1. Software Investment Insight

- The Requirements Driven Development Paradigm Rarely Delivers a Good Return on Investment (ROI)
 - **Software Pollution™ Sources**
 - **Requirements Validation**

2. Wireless Center Needs

- the ***eccm*** toolkit capabilities

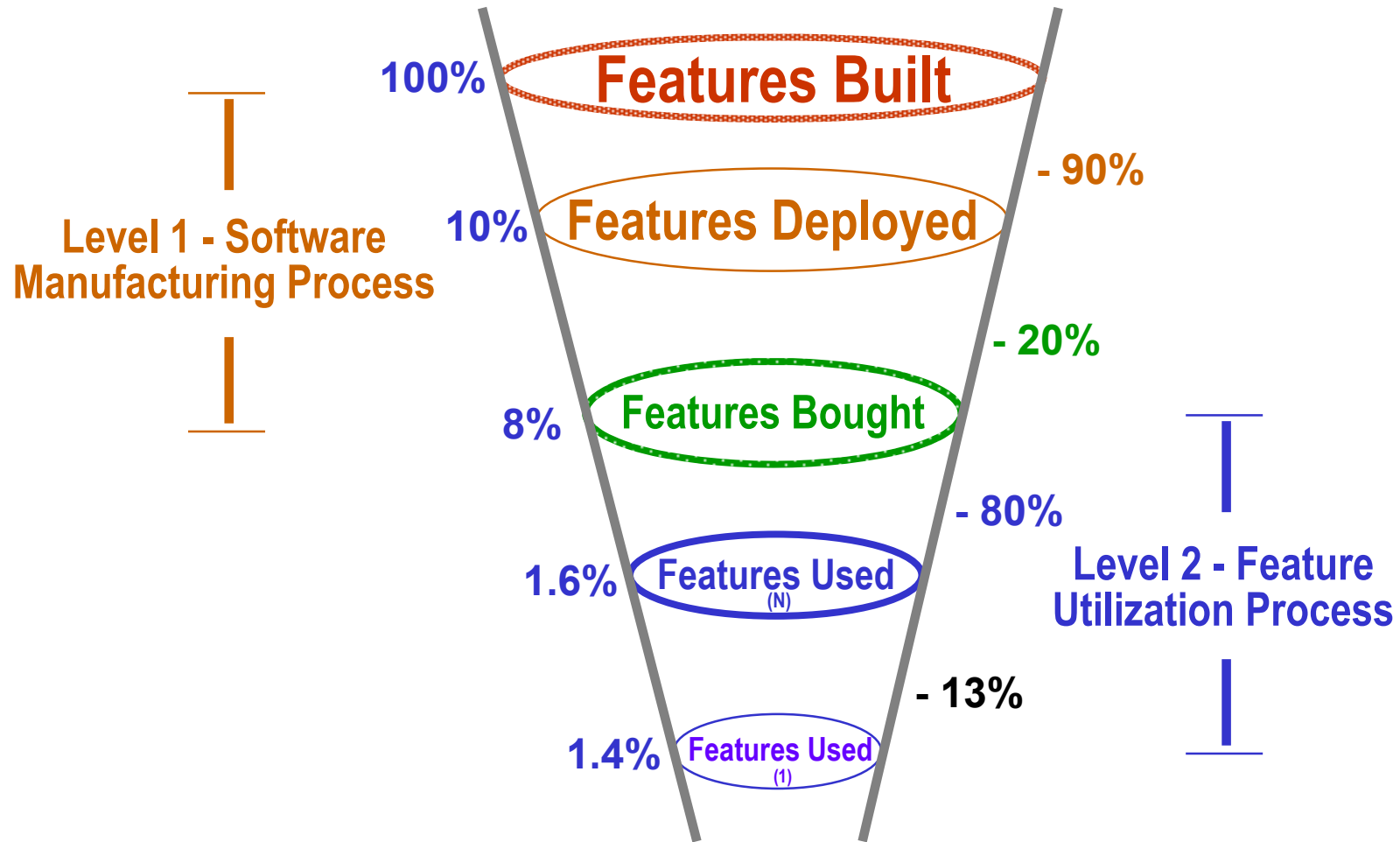
3. Requirements Validation using ***eccm***

- **Architecture**
- **Configuration Management**
 - User Interface
 - Business Rules (BRs)
 - Operational Processes
- **Center Productivity Management**

4. Summary

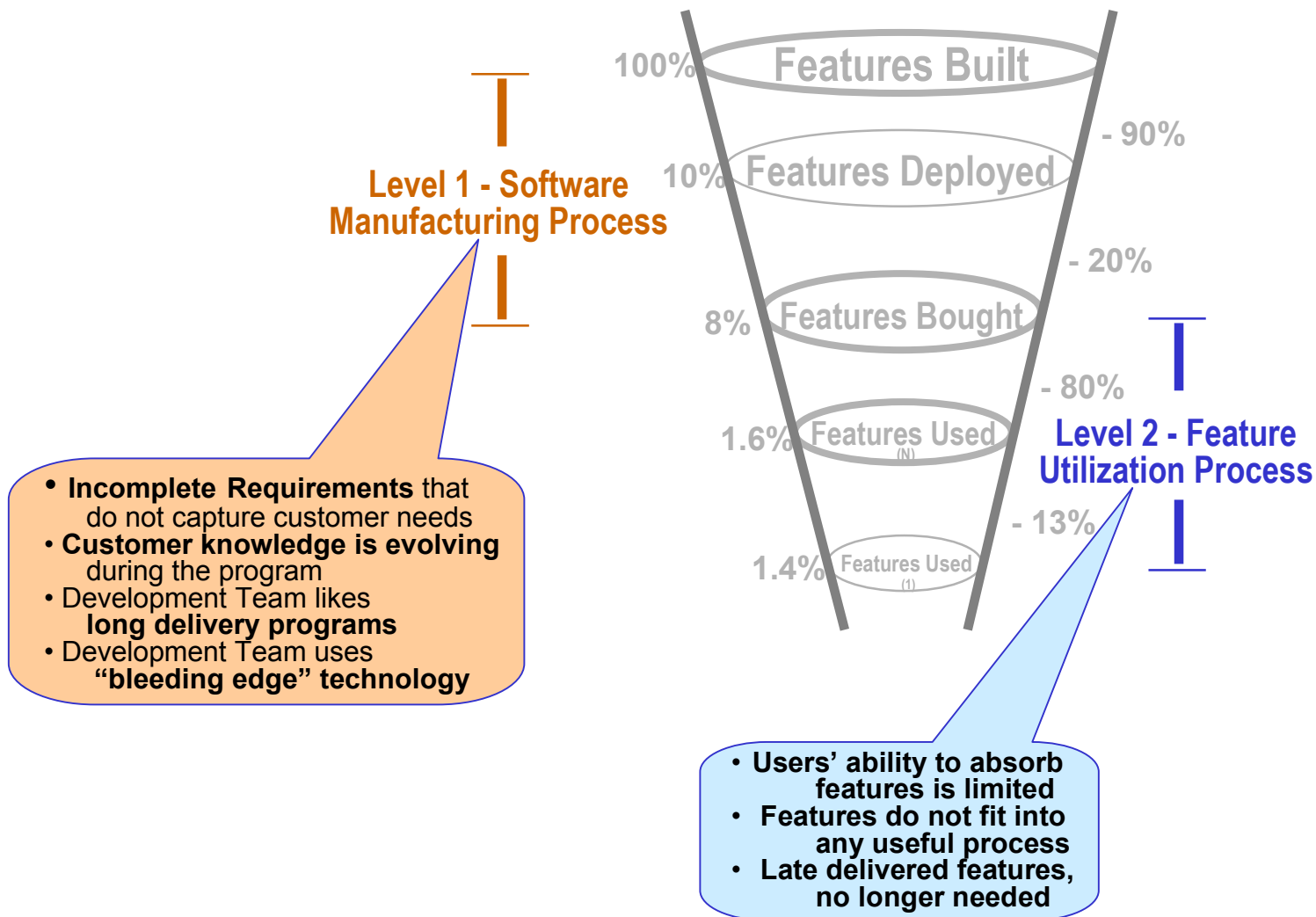
Software Pollution™ (1/2)

Feature Manufacturing and Utilization Analysis



Software Pollution™ (2/2)

Feature Manufacturing and Utilization Analysis



Software Investment (1/3)

The Requirement Driven Paradigm Fails to Deliver ROI



Business Needs Transformed into Requirements

The Problem is Here

Requirements Track Record:

- Incomplete, Inaccurate, Incorrect
- Ad Hoc Validation
- 5 - 8% of Program Cost

Requirements By Release
Existing Software Development Process

Meets Need

Continue Investment

ROI Good

We Try to Fix It Here

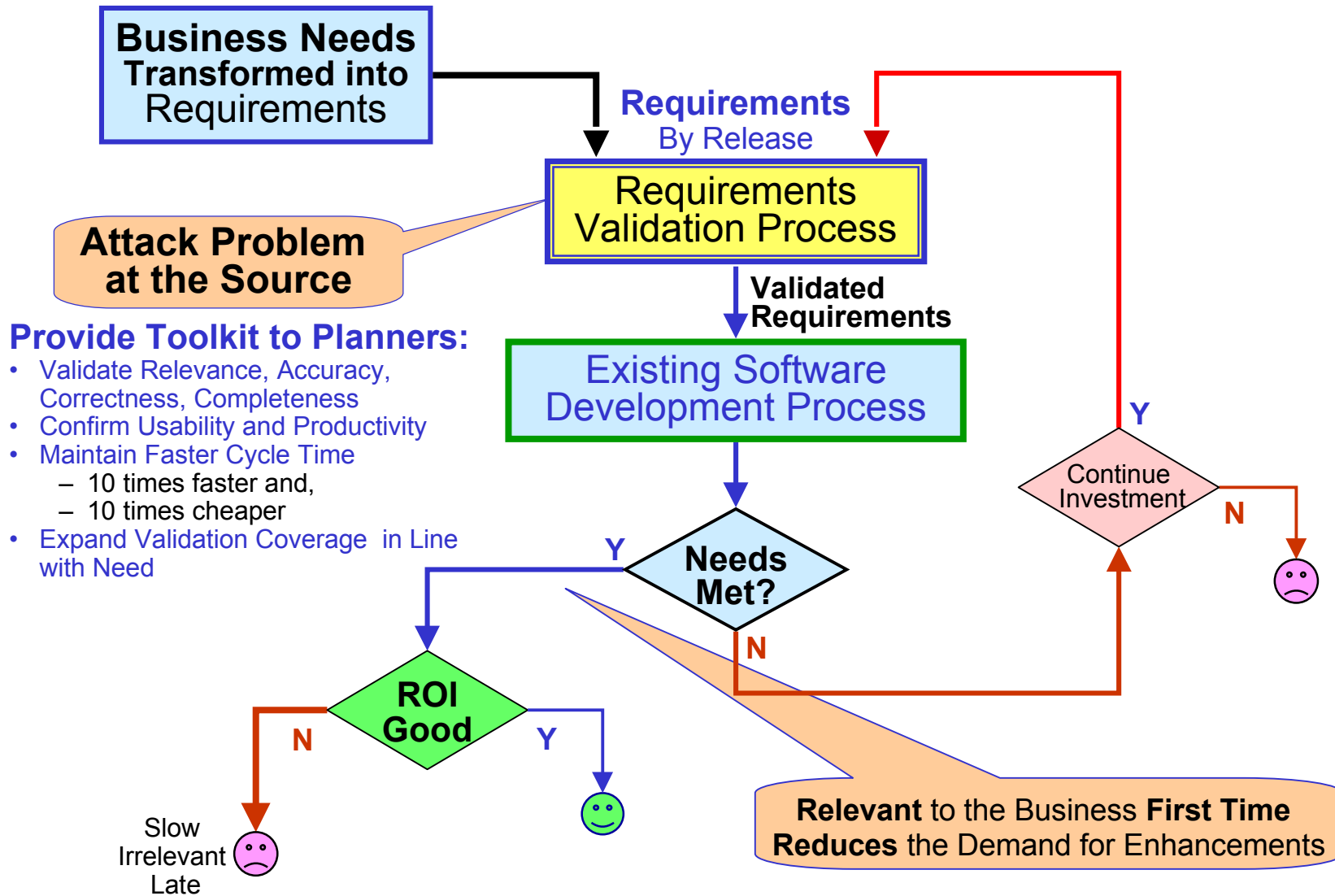
- More Releases (e.g., 6months; \$5M)
 - Architecture, User Interface, BRs, Processes, Reports, Flow-Through, and Training
 - Unstable Operations
- More Time and Investments
 - Never Meets Objectives 1st Time
 - Over 90% of Investment

Most Programs Fail to Deliver ROI Because Business Irrelevance It Takes Too Long to Get It Right

Programs Cancelled Before Deployment

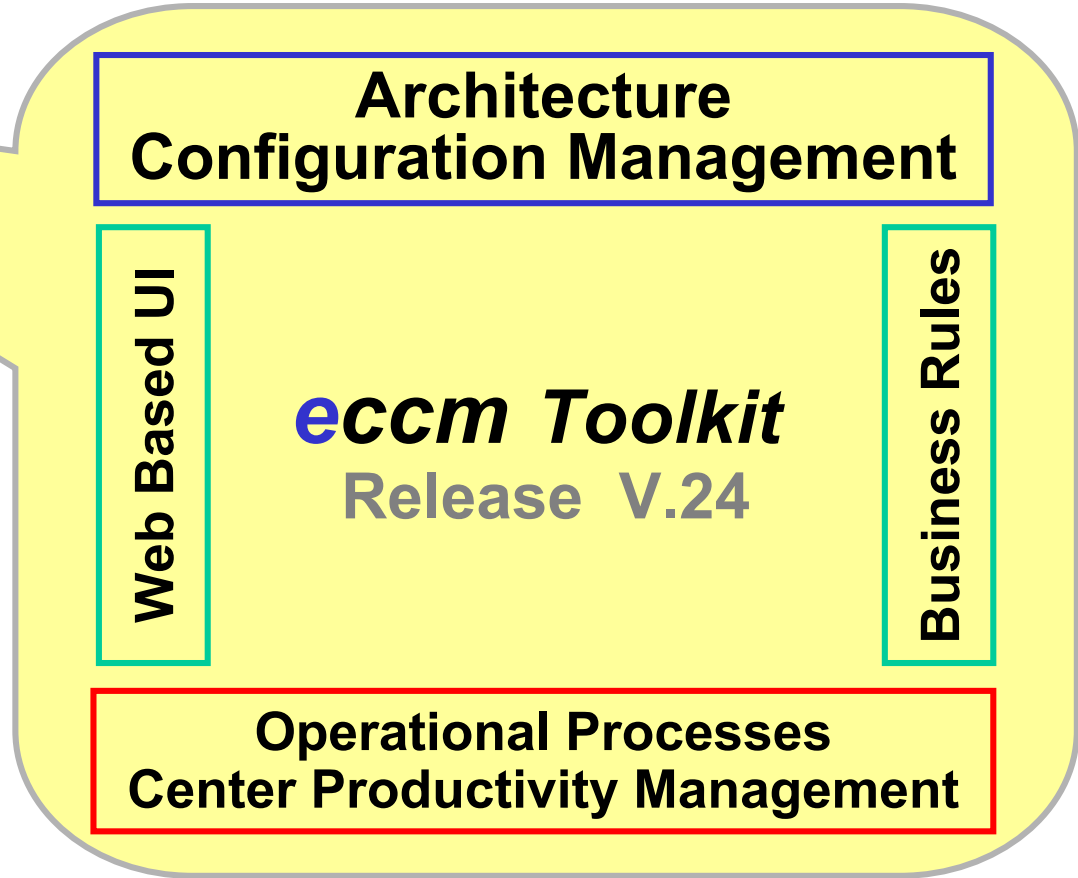
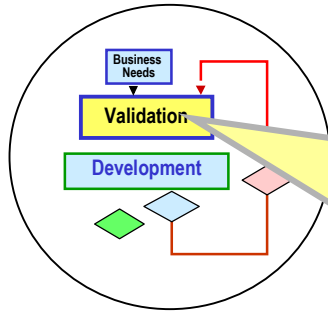
Software Investment (2/3)

Improve Requirements Quality through Validation



Software Investment (3/3)

Supports Validation Capabilities in Six Key Areas



**The Electronic Customer Contact Management (*eccm*) Toolkit
Delivers Cost Effectively Validated Requirements**

Wireless Center

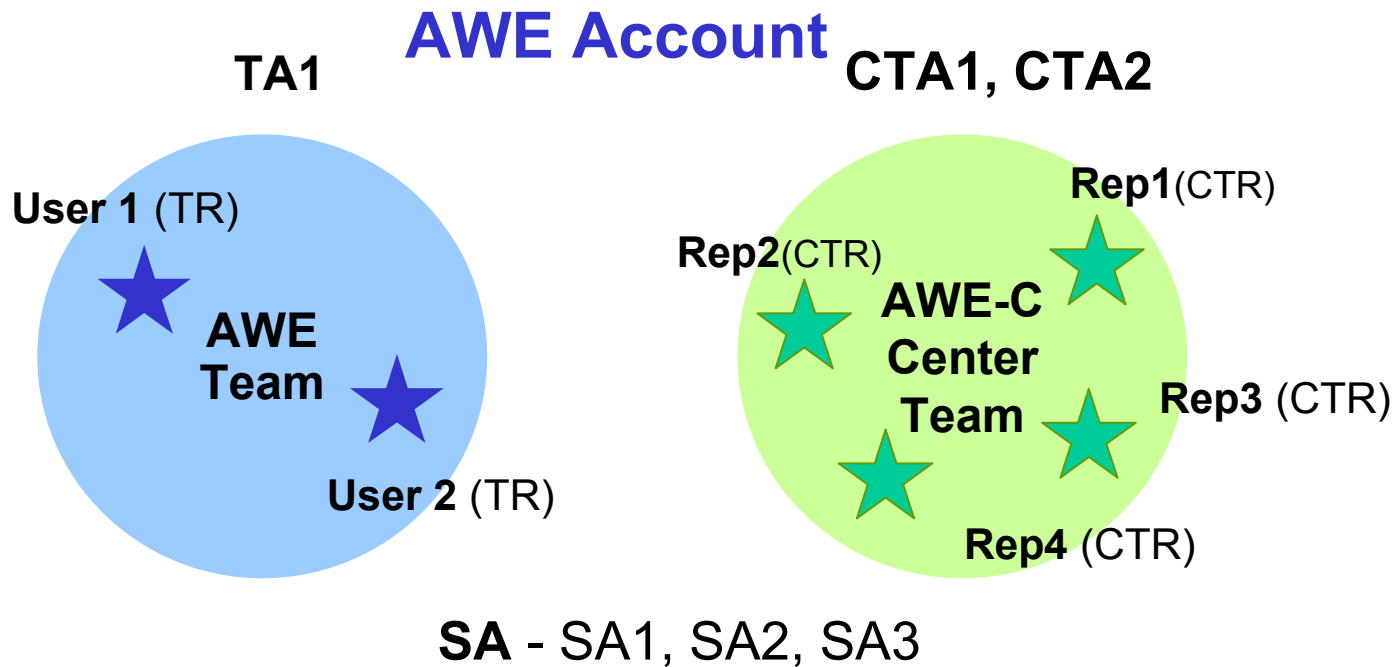
The Business Need



- **Responsible for provisioning data circuits for the wireless industry**
 - connectivity between switches, antennas, etc.
- **Over 500 customers**
 - 50 Reps, 40 System Designers
- **Over 80,000 orders per year**
 - orders are received in the center through faxes and emails
 - it takes ~1.5 hours to process an order per Rep
 - including clarifies, escalations
- **Staffing growing ~30% per year in line with order growth**
 - recruiting major challenge
 - it takes 6 months to get a new Rep fully trained
 - improve Rep productivity to slow down staff growth

Account Configuration

(Figure 4)



TA - team administrator

TR - team Rep

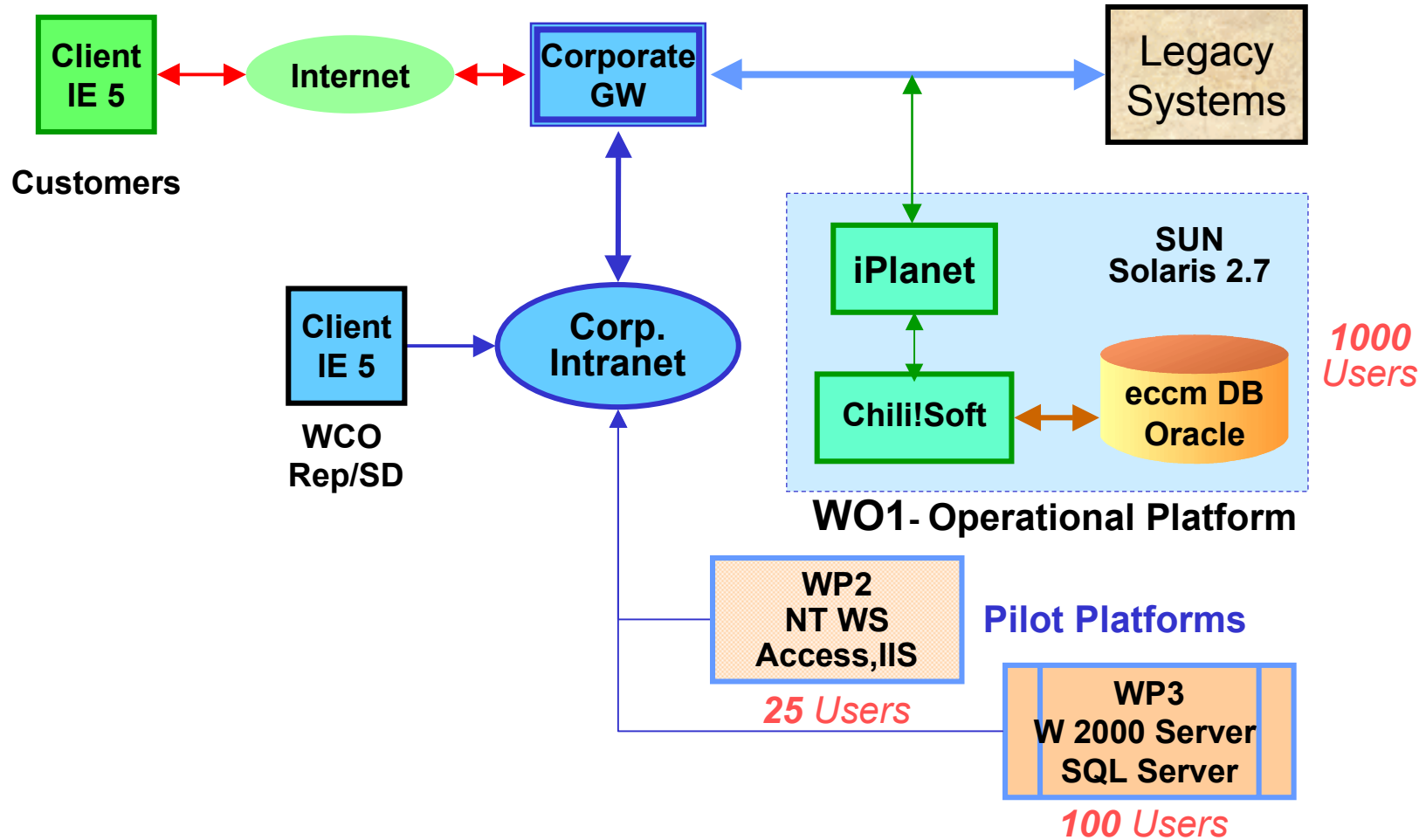
CTA - center team administrator

CTR - center team Rep

SA - system administrator

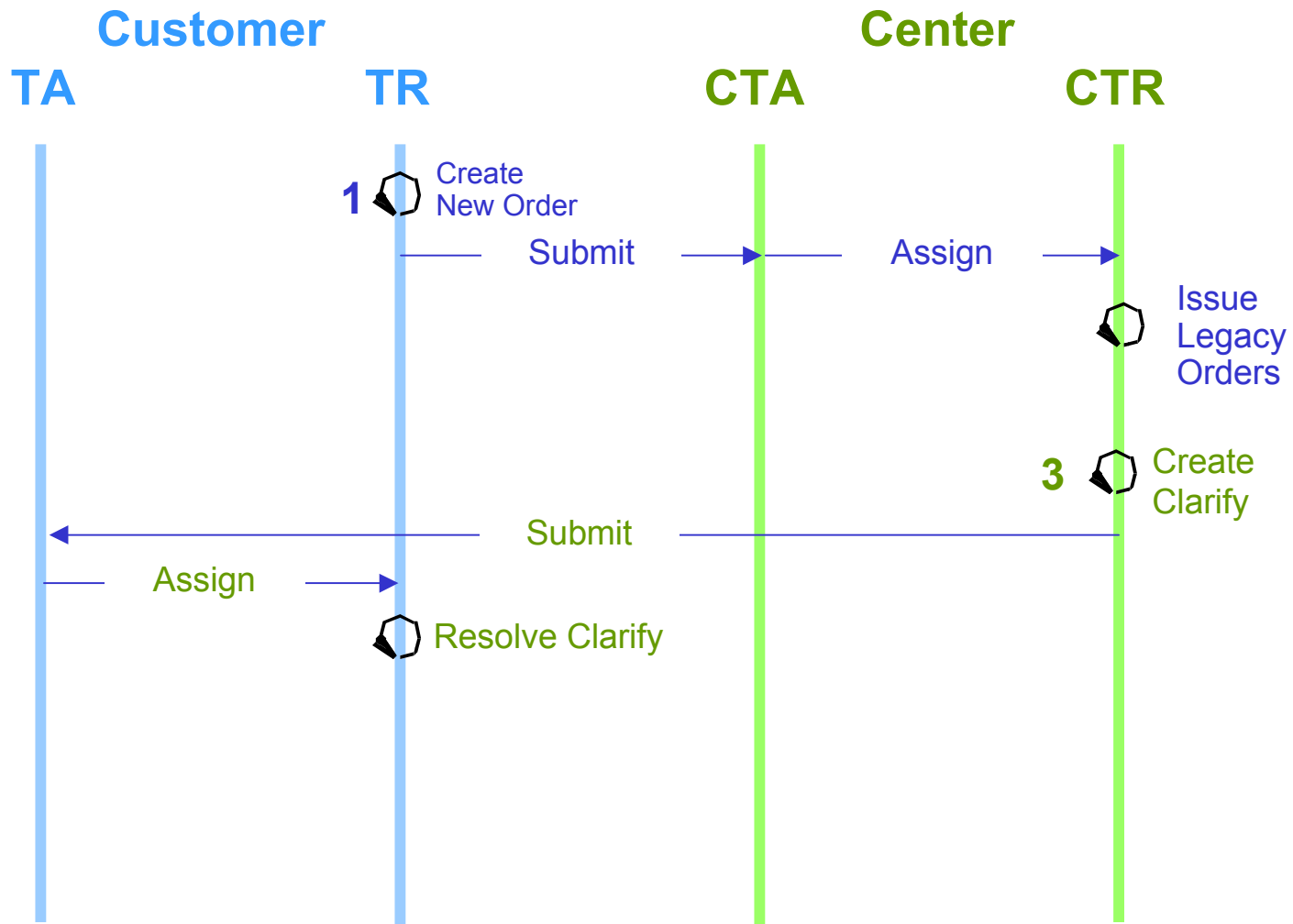
Deployment Architecture

Managing Change Management

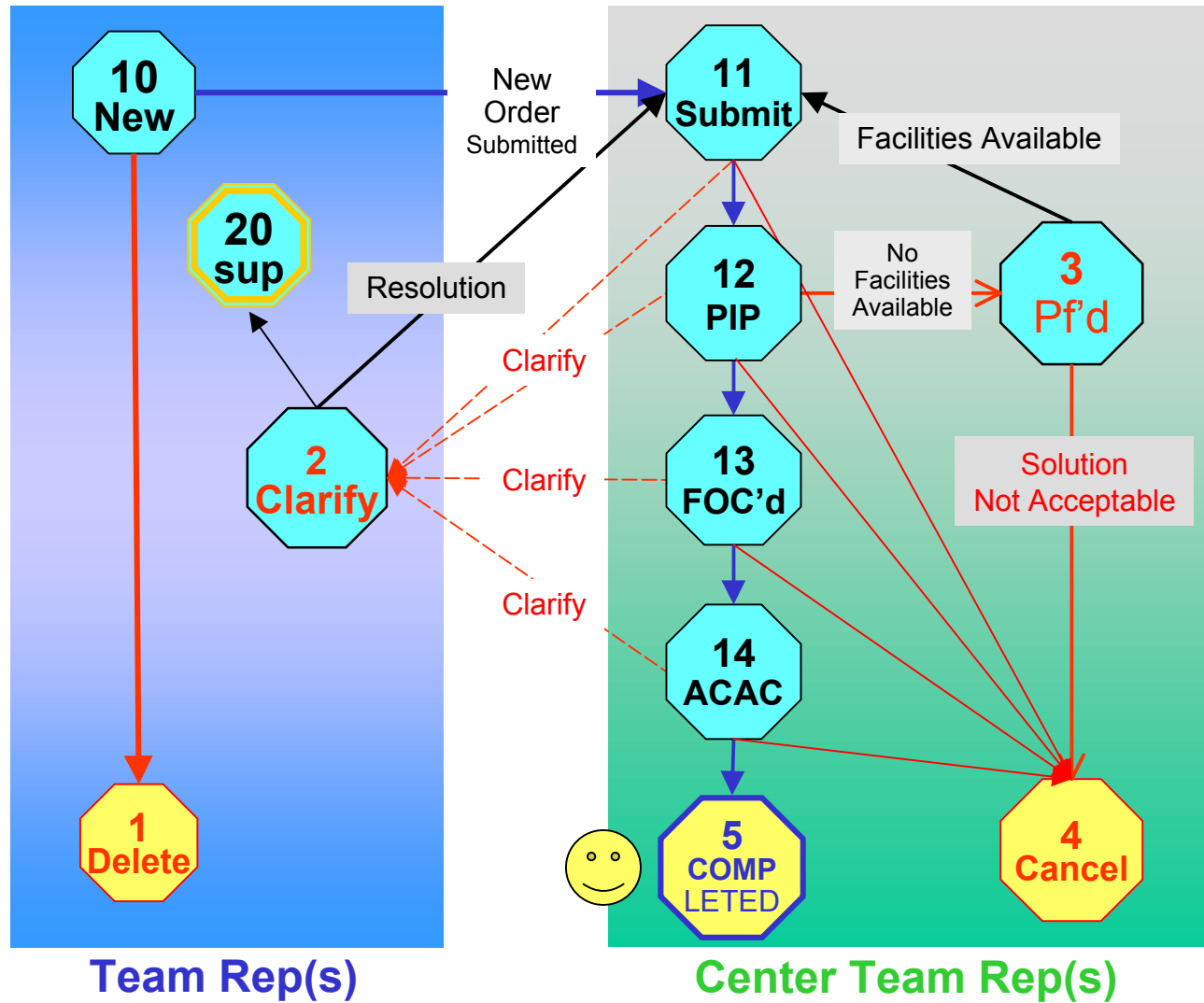


New Order Processing Scenario

Clarify Processing Scenario (Figure 5)



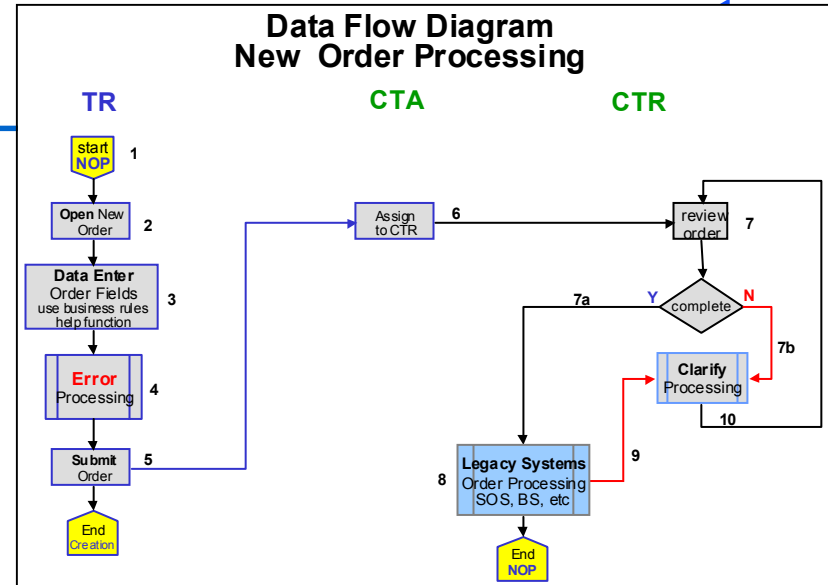
New Order Processing State Machine



Process Definitions

Description
New Order Processing

- Initial Conditions: The Customer Wants to Purchase a Link (e.g., Prem to Prem) to Meet their Wireless Network Needs.
A TR is assigned by the TA to Create a New Order in Line with the business needs.
- The TR Logs-in to the **eccm** application:
 - selects **Prem to Prem MEGALINK/Light/Plus**
 - selects **Create New Order**
- The TR Data Enters the details of the new order - one field at a time
 - periodically the TR saves the content of the order
 - periodically the TR may verify completeness of the order
 - error messages will be presented in a separate window
 - errors can be fixed incrementally or once the data entry was completed
 - if necessary the session can be terminated and the data entry operation can be renewed at a later time
- The TR makes all the error corrections
 - clicking on each error message will position the cursor at the right field for correction
 - required and conditionally required business rules are enforced
 - data integrity business rules (telephone number, date, email) are enforced
 - any attempt to submit an incomplete order results in automatic verification with all defects presented in the error window
- The TR Submits the verified (completed) order to the CTA
 - the order status is changed from New to Submitted
 - the TR no longer can make changes to the order unless a Sup Order is created
- The CTA Assigns the New Order to appropriate CTR
 - If the order is not complete issues a Clarify to the TR
- Initiate Legacy System Processing



Screen Layouts
New Order Processing (1/23)

Welcome Jason Nelson
Team: AWE
Customer: AT&T Wireless

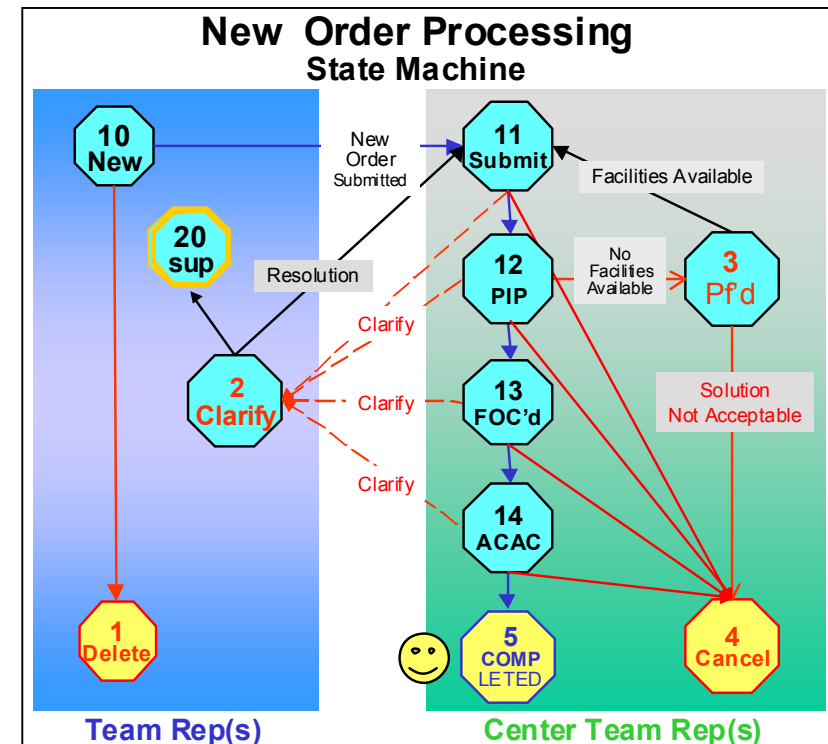
Data Entry

- Prem to Prem MEGALINK/Light/Plus
- Mini MEGALINK/Channelized/DS1/Light/Plus

Order Form: Prem to Prem MEGALINK/Light/Plus

2 Order forms meet the search criteria:

ACI	Current Status	Stat	Dat
11	Y Created	10/17/	
10	Y Submitted	10/17/	



Data Entry User Interface

(Figure 7; slide 14)



Prem to Prem MEGALINK/Light/Plus (New/Supp) Contents

[Overview \[0 - 8\]](#)
[Section A: Administrative \[10 -17\]](#) ←
[Section B: Circuit Locations \[18-46\]](#)
[Location A \(Originating Customer Prem\) \[19-32\]](#)
[Location B \(Terminating Customer Prem\) \[33-46\]](#)
[Section C: Options for Prem to Prem Megalink \[47\]](#)
[Section D: Billing/Contract Information \[48-61\]](#)
[Section E: Remarks/Driving Directions \[62-64\]](#)

Project ID:
Project Name:
Order ID: 10 ←
Version: 1
Order Status: Created
Days in Status: 111
Prior Order Status: New

Assigned To:
AWE: Jason Nelson

Created By:
AWE: Jason Nelson

Order History:
Modified 2/1/01 12:38:47 PM, JN ←
Modified 11/4/00 5:38:07 PM, JN
Modified 10/28/00 6:30:06 PM, DJ
Modified 10/13/00 2:32:55 PM, JN
Modified 10/13/00 2:28:35 PM, JN
Created 10/13/00 2:23:35 PM, JN

Create/edit: Prem to Prem MEGALINK/Light/Plus (New/Supp)

Overview [0 - 8] [545]

0a. Rate Quote Requested [238] Yes No

0b. Service Type [239] R

0c. Originator [240] O

0d. Pre-assigned Order Number [241]

0e. FOC Order Number [242]

1. State [243] R

2. [244]

3. PON [245] O

4. Related PON [246] O

5. From [247] R

6a. TN [248] R

6b. Fax No. [249] C ←

6c. E-mail [250] C
Fax TN or email must be provided for preparer of request, if this is not populated, then 6c must be or form will not be released.

7a. FOC Case Name [251] O

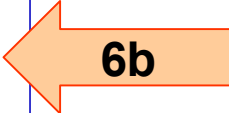
Required Field Error Summary

No Required or Conditionally Required errors.

Business Rules Knowledge Base Integrated with the Browser



6a. TN	<input type="text"/>	R
6b. Fax No.	<input type="text"/>	C
6c. E	Fax TN or email must be provided for preparer of request, if this is not populated, then 6c must be or form will not be released.	
7a. FOC Cust Name	<input type="text"/>	
7b. FOC TN	<input type="text"/>	O



13. Order Firm or Inquiry	<input type="text" value="Firm Order"/>	R
14a. Order Type	<input type="text"/>	C
14b. Explain	If Firm order=yes, then this is a required field	



List of Orders - User Interface



>> Home >> Logoff

Mini MEGALINK (New/Supp) Form

[Create New](#) [Add/Remove Project](#)

6 Order forms meet the search criteria:

ID	V	A	C	S	D	P	P	T	A	#	#	#	#	Service Type	Order Type	PON	
	ect	ct	ent	tatus	ays	rior	roj	roj	eam	ssigned	E	E	C				
	sive	ive	ive	ive	in	atus	ID	Name		To	S	S	L				
	#	#	#	#	in						C	C	A				
					Status						S	R	S	R			
6	1	Y	PIP	9/22/00 8:26:51 PM	239.3	SubmitAsg			AW-C	Morgan, Ella	0	0	0	0	Megalink	New Service	111122
9	1	Y	SubmitNew	9/22/00 8:22:25 PM	239.3	Create			AW-C	***, ***	0	0	0	0	Plus	New Service	111133
4	1	Y	FOC	9/22/00 8:18:41 PM	239.3	PIP			AW-C	Logan, Kathy	0	0	0	0	Megalink	New Service	111114
7	1	Y	Create	9/22/00 8:14:02 PM	239.3	New			AW	Lord, Kevin	0	0	0	0	Megalink		
5	1	Y	SubmitAsg	9/22/00 8:07:03 PM	239.3	SubmitNew			AW-C	Easley, Alice	0	0	0	0	Light	New Service	111120
3	1	Y	Create	9/22/00 8:05:28 PM	239.3	New			AW	Nelson, Jason	0	0	0	0	Light	New Service	111113

Business Rules Validation

(Slide 17)



Prem to Prem MEGALINK/Light/Plus Contents

[Overview \[0 - 8\]](#)
[Section A: Administrative \[9 -17\]](#)
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[Location A \(Originating Customer Prem\) \[19-32\]](#)
[Location B \(Terminating Customer Prem\) \[33-46\]](#)
[Section C: Options for Prem to Prem Megalink \[47\]](#)
[Section D: Billing/Contract Information \[48-61\]](#)

Order ID: 13
Version: 1
Order Status: Created
Days in Status: 0
Prior Order Status: New

Assigned To:
AWE: Jason Nelson

Created By:
AWE: Jason Nelson

Order History:
Modified 10/21/00 1:28:04 PM, JN
Modified 10/21/00 12:29:52 PM, JN
Modified 10/21/00 12:29:24 PM, JN
Created 10/21/00 12:24:24 PM, JN

Required Field Error Summary

Total Errors: 16 **16 errors**
The following fields are Required (R) or Conditionally Required (C):

[0b. Service Type \(R\)](#) ← 1
[1. State \(R\)](#) ← 2
[9. CMRS Provider Name \(R\)](#)

Create/edit a Prem to Prem MEGALINK/Light/Plus

Overview [0 - 8]

0a. Rate Quote Requested O

0b. Service Type R ← 1

0c. Originator O

0d. Pre-assigned Order Number O

0e. FOC Order Number O

1. State R ← 2

2. Date R

3. PON O

4. Related PON O

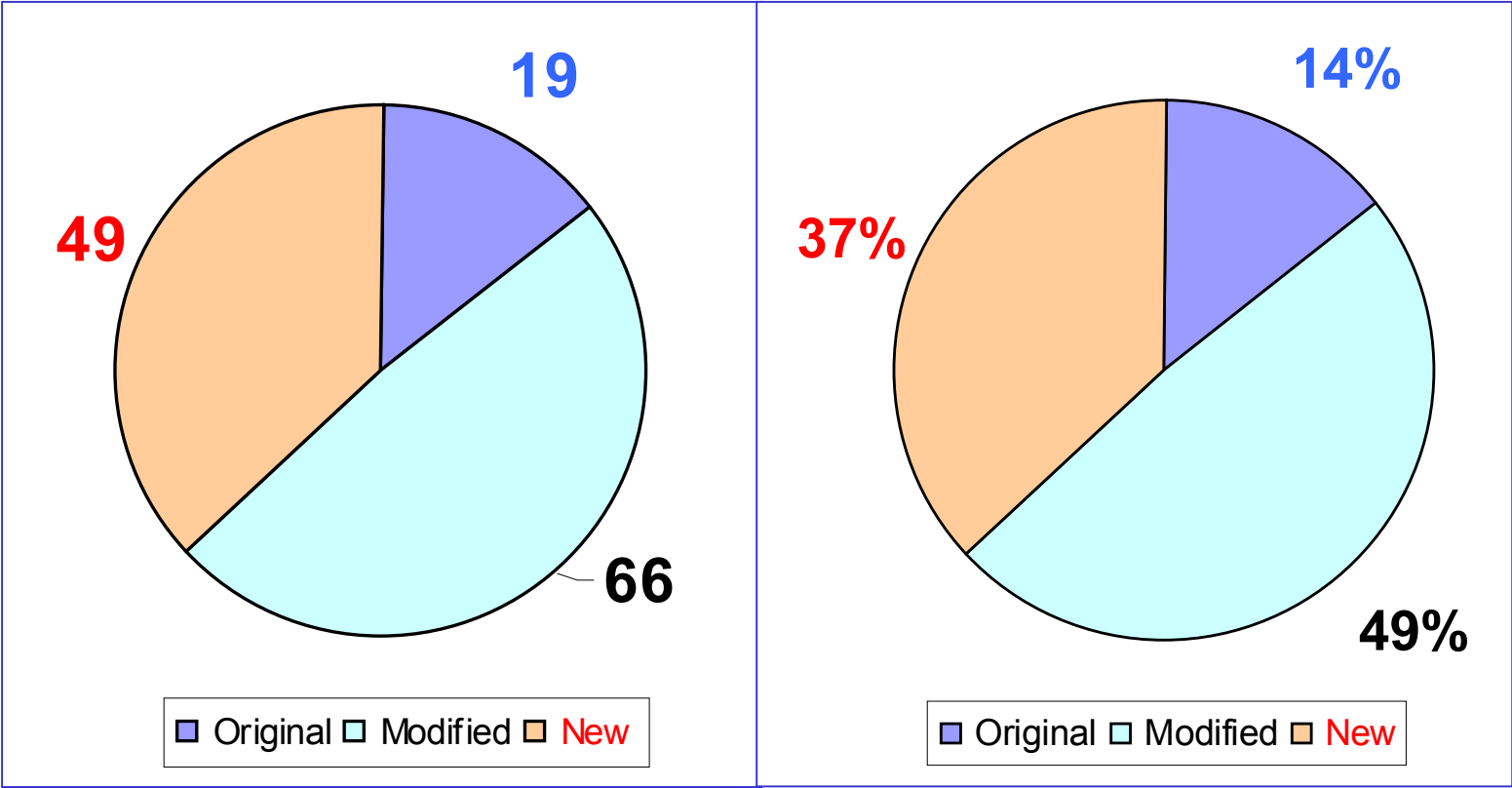
5. From R

6a. TN R

6b. Fax No. C

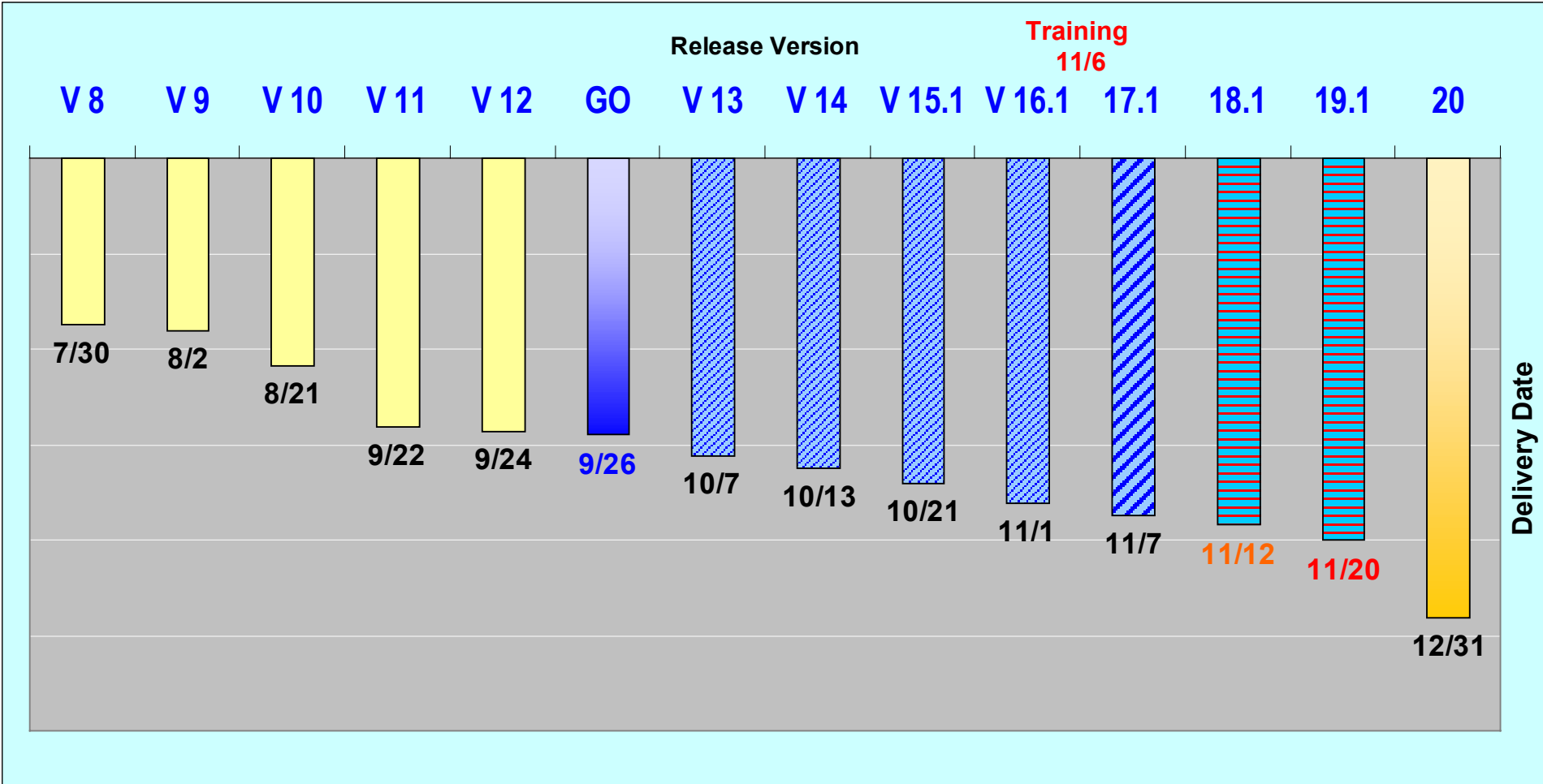
6c. E-mail C

Prem to Prem MEGALINK BRs Validation Results (Figure 6)



eccm Software Releases

(Figure 2)



Administer Users and Teams

- [1. Administer Passwords](#)
- [2. Administer Users](#)
- [3. Administer Active User Sessions](#)
- [4. Administer Backup](#)
- [5. Administer Teams](#)
- [6. Administer Organizations](#)
- [7. Administer Fields](#)
- [8. Administer Forms](#) ←
- [9. Administer Parameters](#)

How the Steak is Cooked

FASTER

Order Management Process - Evaluation

Interval Analysis: Orders, Escalations and Clarifies



Order Tracking Reports

Weekly Reports

- [1. Created Orders By Week](#)
- [2. Submitted Orders By Week](#)
- [3. Completed Orders By Week](#)
- [4. Create-Submit Order Duration By Week](#)
- [5. Submit-FOC Order Duration By Week](#)
- [6. FOC-Complete Order Duration By Week](#)
- [7. Clarify Order Density by Week](#)
- [8. Escalation Order Density by Week](#)
- [9. Supplement Order Density by Week](#)

Monthly Reports

- [10. Created Orders By Month](#)
- [11. Submitted Orders By Month](#)
- [12. Completed Orders By Month](#)
- [13. Create-Submit Order Duration By Month](#)
- [14. Submit-FOC Order Duration By Month](#)
- [15. FOC-Complete Order Duration By Month](#)
- [16. Clarify Order Density by Month](#)
- [17. Escalation Order Density by Month](#)
- [18. Supplement Order Density by Month](#)

Current View Reports

- [19. Current Active Order Status](#)
- [20. Current Inactive Order Status](#)

Clarify Tracking Reports

Weekly Reports

- [1. Created Clarifies By Week](#)
- [2. Submitted Clarifies By Week](#)
- [3. Completed Clarifies By Week](#)

Escalation Tracking Reports

Weekly Reports

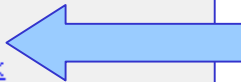
- [1. Created Escalations By Week](#)
- [2. Submitted Escalations By Week](#)
- [3. Completed Escalations By Week](#)
- [4. Create-Submit Escalation Duration By Week](#)
- [5. Submit-Complete Escalation Duration By Week](#)

Monthly Reports

- [6. Created Escalations By Month](#)
- [7. Submitted Escalations By Month](#)
- [8. Completed Escalations By Month](#)
- [9. Create-Submit Escalation Duration By Month](#)
- [10. Submit-Complete Escalation Duration By Month](#)

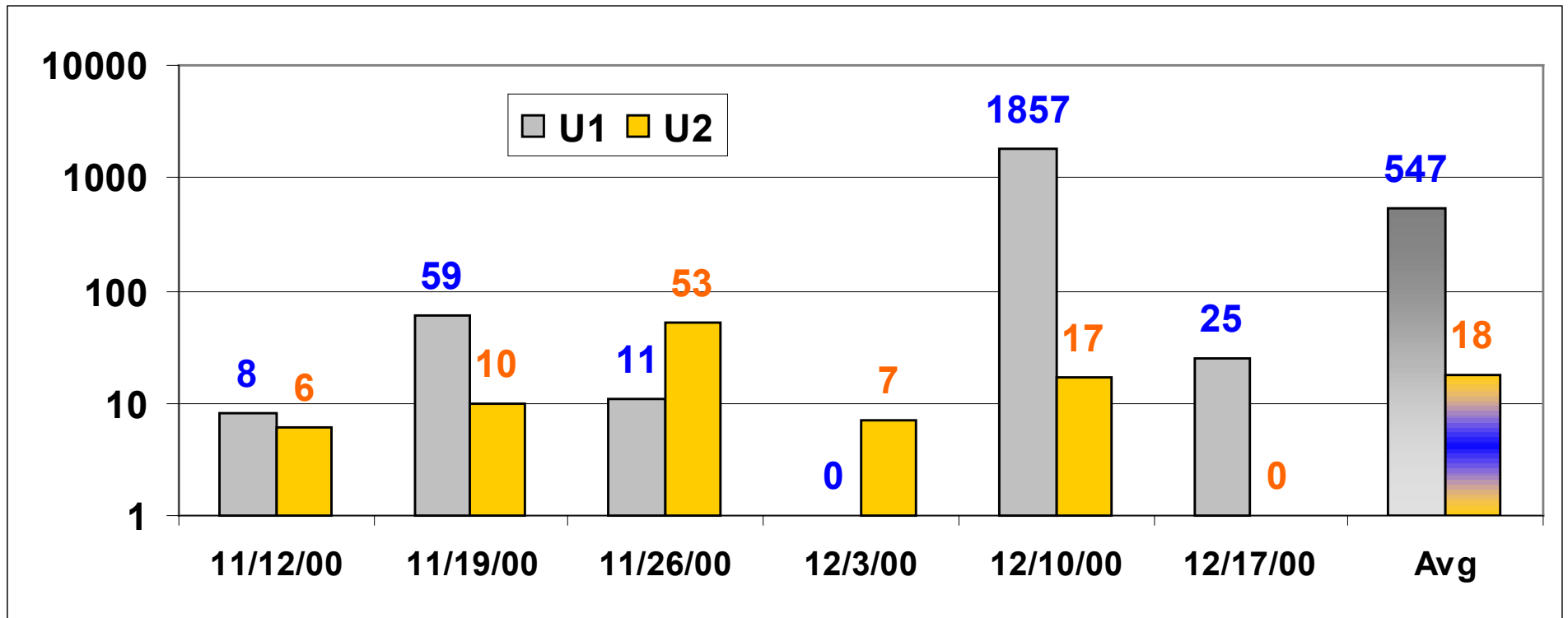
Current View Reports

- [11. Current Active Escalation Status](#)
- [12. Current Inactive Escalation Status](#)



Order Tracking

Average [Create - Submit] Interval (minutes) (Figure 8)



Integrated Historical Analysis

Session ID, Action, Form Type and State Change Information



User Session Details
(1/30/2001 11:48:47 AM)
Customer: Sprint

Ref #	Team	Team Rep	Sess Cnt	Sess ID	Action	Time	Form ID	Form Vsn	Form
1	Sprint	Bowers	1	16	Logon	11/16/2000 10:42:53 AM			
2	Sprint	Bowers	1	16	Logoff	11/16/2000 11:26:25 AM			
3	Sprint	Bowers	2	20	Logon	11/16/2000 3:11:59 PM			
4	Sprint	Bowers	2	20	Logoff	11/16/2000 3:21:38 PM			
5	Sprint	Bowers	3	29	Logon	11/17/2000 2:04:27 PM			
6	Sprint	Bowers	3	29	Logoff	11/17/2000 2:07:01 PM			
7	Sprint	Bowers	4	39	Logon	11/20/2000 11:06:07 AM			
9	Sprint	Bowers			Modified	11/20/2000 11:21:18 AM	3	1	Clarify
10	Sprint	Bowers			Modified	11/20/2000 11:30:42 AM	3	1	Clarify
11	Sprint	Bowers			AssignedBy	11/20/2000 11:31:00 AM	3	1	Clarify
12	Sprint	Bowers			AssignedTo	11/20/2000 11:31:00 AM	3	1	Clarify
13	Sprint	Bowers			Completed	11/20/2000 11:31:32 AM	3	1	Clarify
13	Sprint	Bowers	4	39	Logoff	11/20/2000 11:32:08 AM			
14	Sprint	Bowers	5	42	Logon	11/20/2000 1:29:47 PM			
15	Sprint	Bowers	5	42	Logoff	11/20/2000 2:07:31 PM			
16	Sprint	Bowers	6	49	Logon	11/21/2000 12:36:46 PM			
18	Sprint	Bowers			Created	11/21/2000 12:43:30 PM	5	1	Prem to Prem MEGALINK/Light/Plus (New/Supp)
19	Sprint	Bowers			Submitted	11/21/2000 1:00:19 PM	5	1	Prem to Prem MEGALINK/Light/Plus (New/Supp)
19	Sprint	Bowers	6	49	Timeout	11/21/2000 1:00:41 PM			
20	Sprint	Bowers	7	52	Logon	11/21/2000 1:30:14 PM			
21	Sprint	Bowers	7	52	Timeout	11/21/2000 1:59:10 PM			
22	Sprint	Bowers	8	55	Logon	11/21/2000 2:47:18 PM			
23	Sprint	Bowers	8	55	Drop	11/21/2000 2:47:22 PM			

Summary

Improve Solution Quality and ROI through Validation

