



# Mobile Device Management in a BYOD World

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# Mobile Device Management in a BYOD World

## Agenda

- It's a BYOD World
- What can I do to maintain control?
- How do these devices connect to Exchange?
- Troubleshooting tools and methods.

# BYOD initiatives are great, right?

## Benefits

- Reduced cost to organizations
- Increased productivity
- Freedom from your desk
- Custom applications
- User can choose their own device (Cool Factor)

## Challenges

- Lack of top level BYOD policies
- Sensitive data leaks
- Users can choose their own devices (Cool factor)
- Troubleshooting
- Risk to ***your*** infrastructure

# How can I control my BYOD deployment?

## Proactive

- You must have a Mobile Device Policy that comes from the top down.
- Know devices that have issues. (KB2563324)
- Test, Test, Test *before* it is approved for general use.
- Educate your end users on calendaring best practice. (*Refer to the new 2007/2010./2013 Guide*)

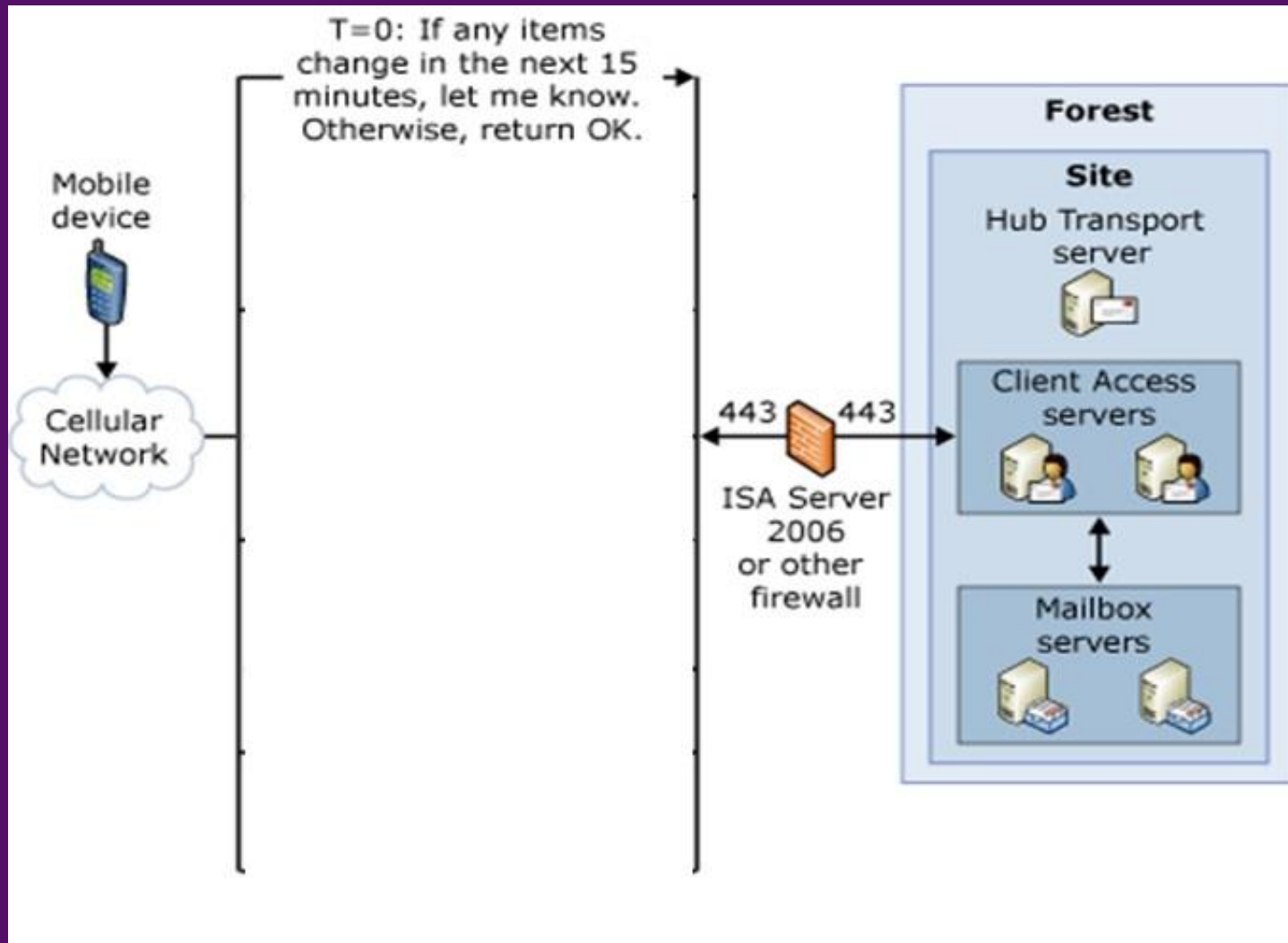
## Reactive

- How are you going to deal with un-approved devices or misbehaving devices? (Allow Block Quarantine)
- How to read the IIS Logs
- If you verify an issue please open a case with the manufacturer of that mobile device

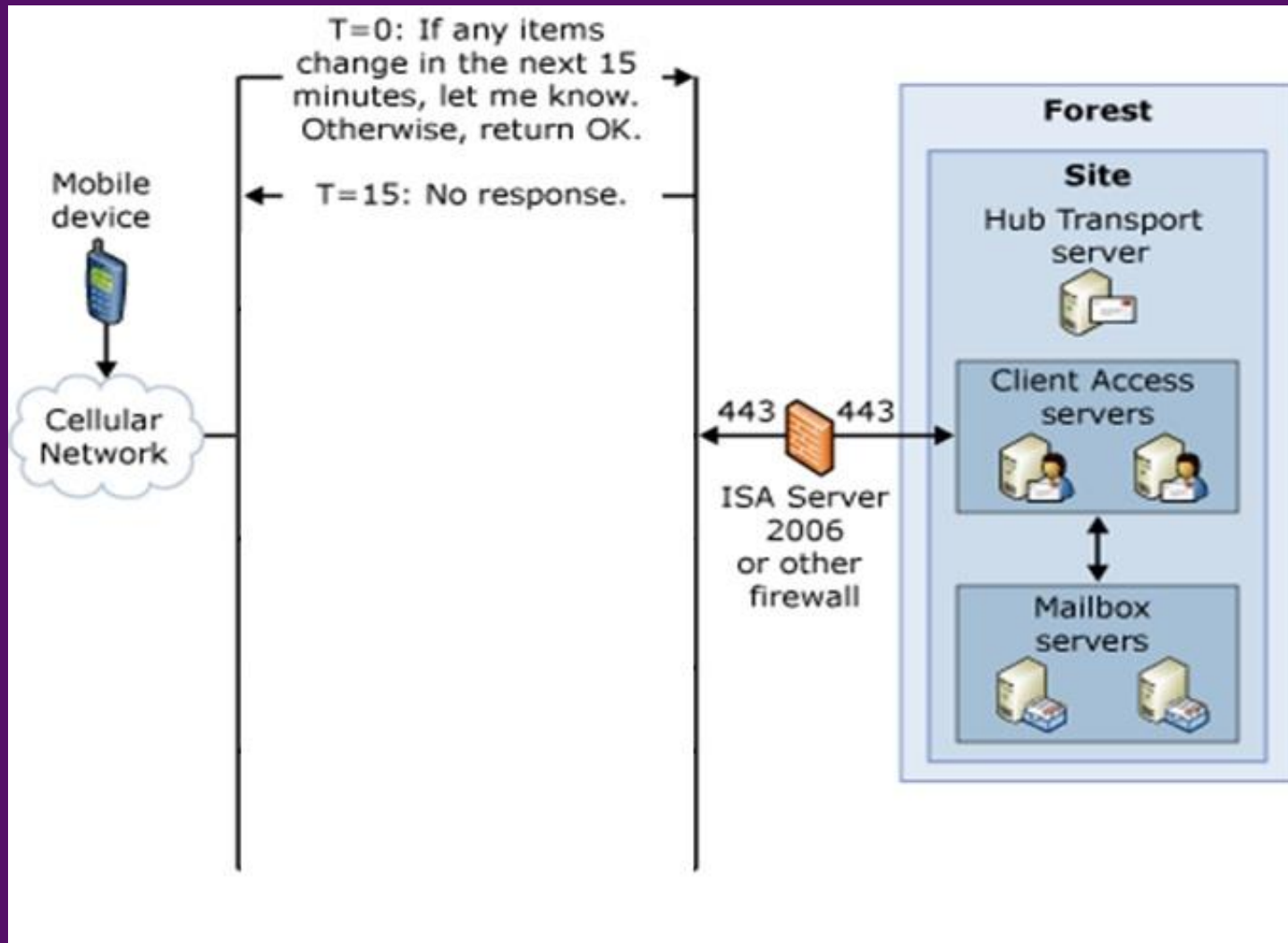
# How do I troubleshoot Active Sync Issues?

The more you know.....

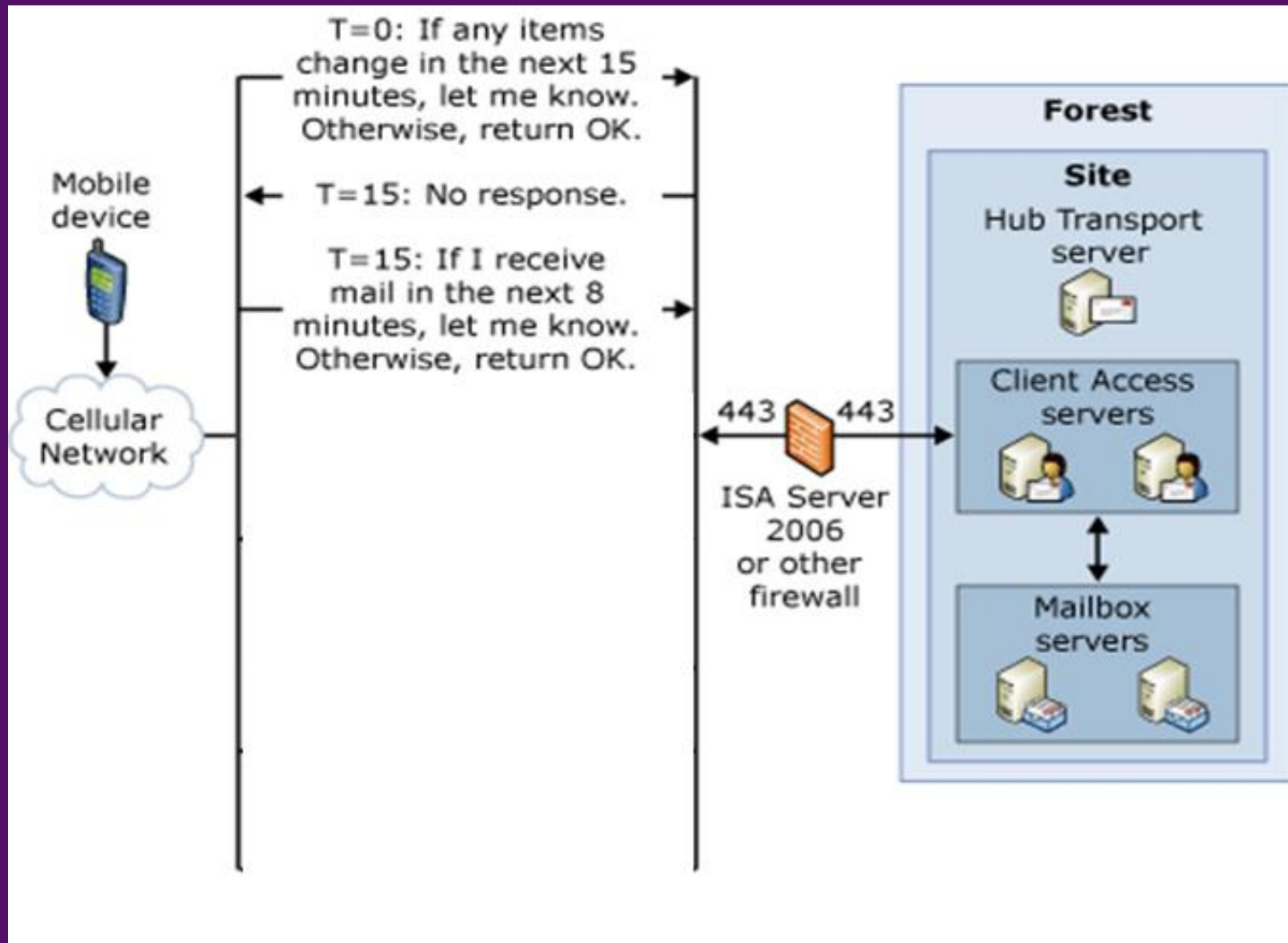
# EAS Traffic – Direct Push - Request



# Direct Push – No Response in 15 min.

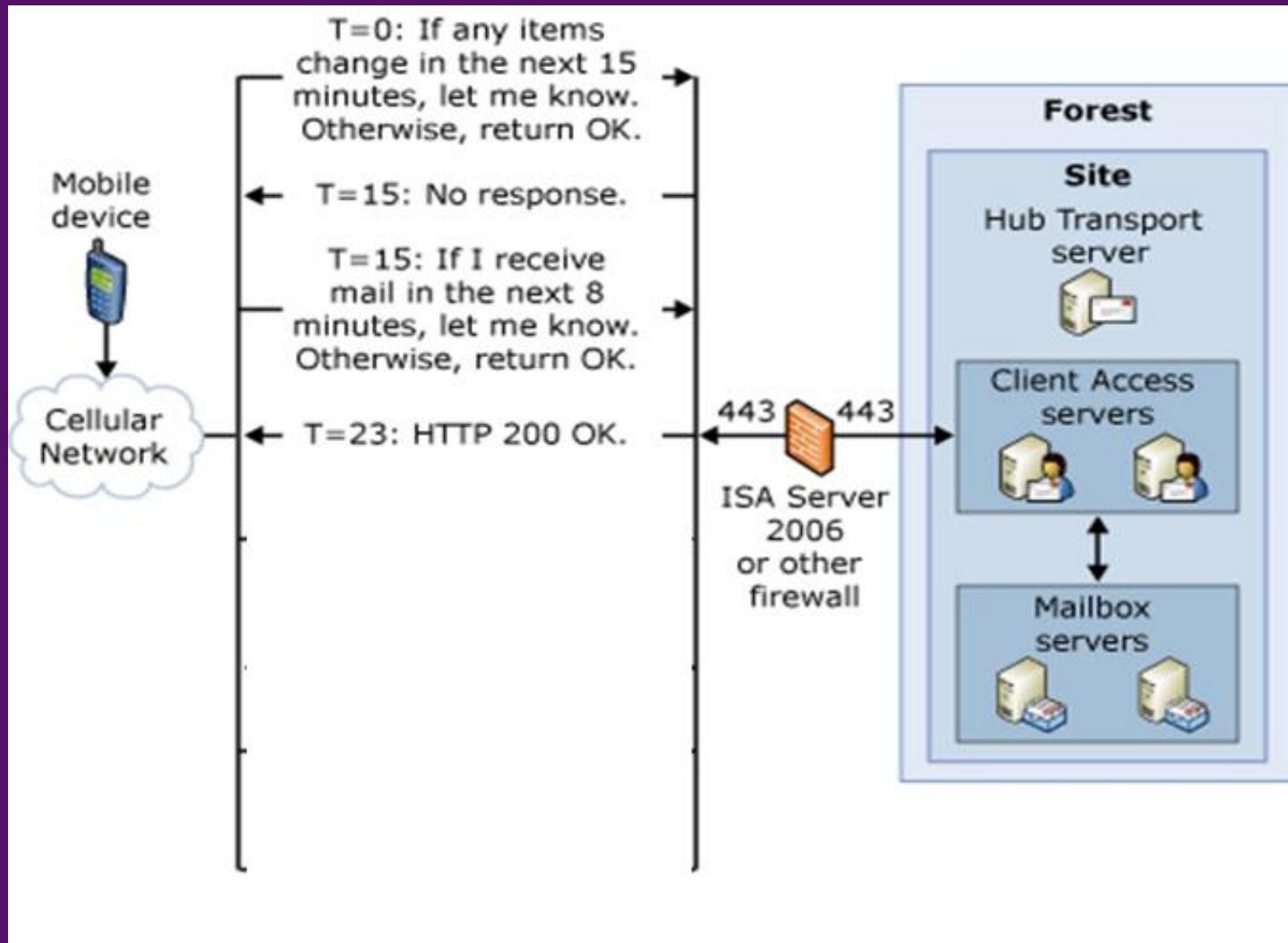


# Direct Push - WM Reduces Heartbeat

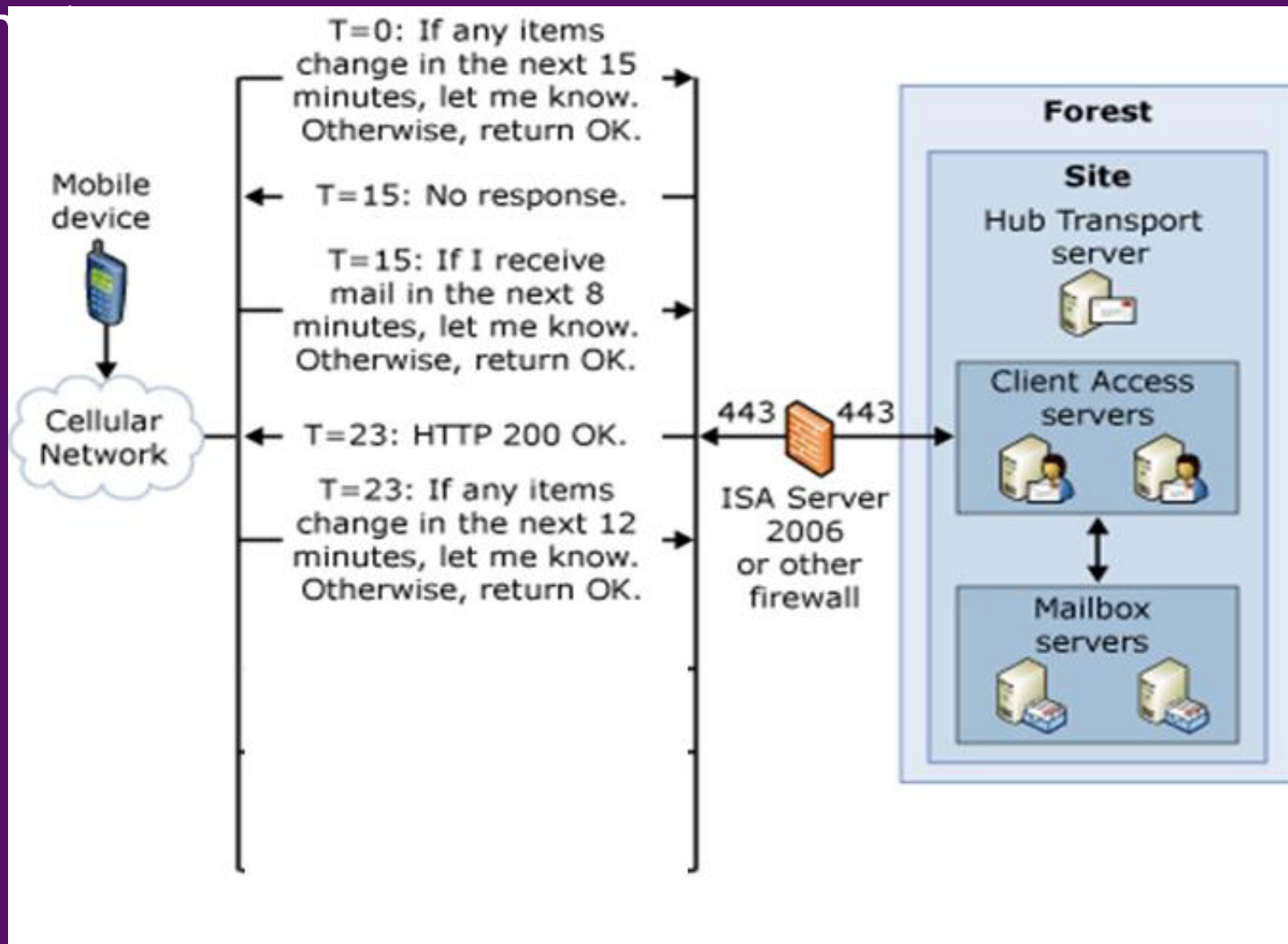




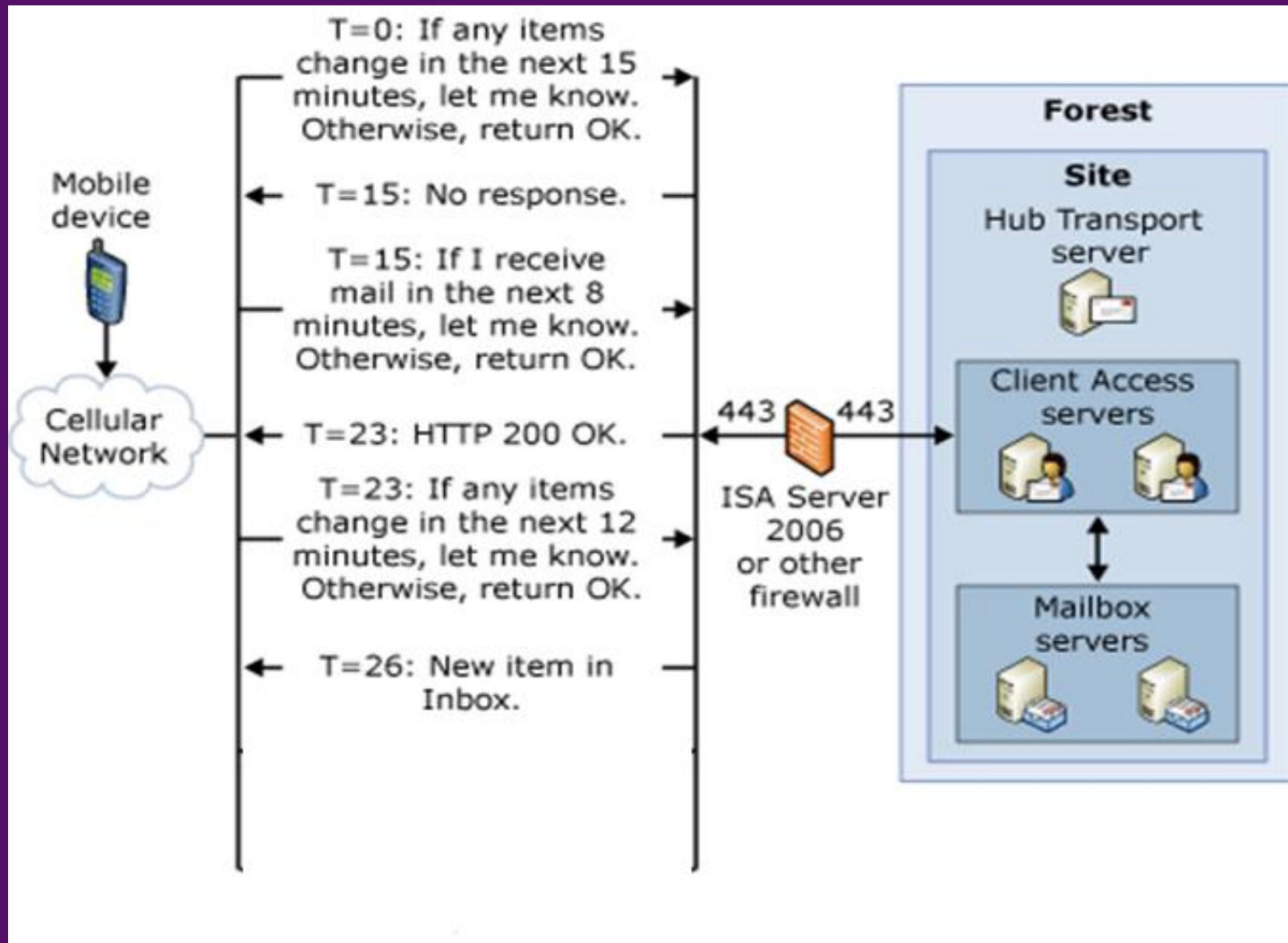
# Direct Push – Server Response OK



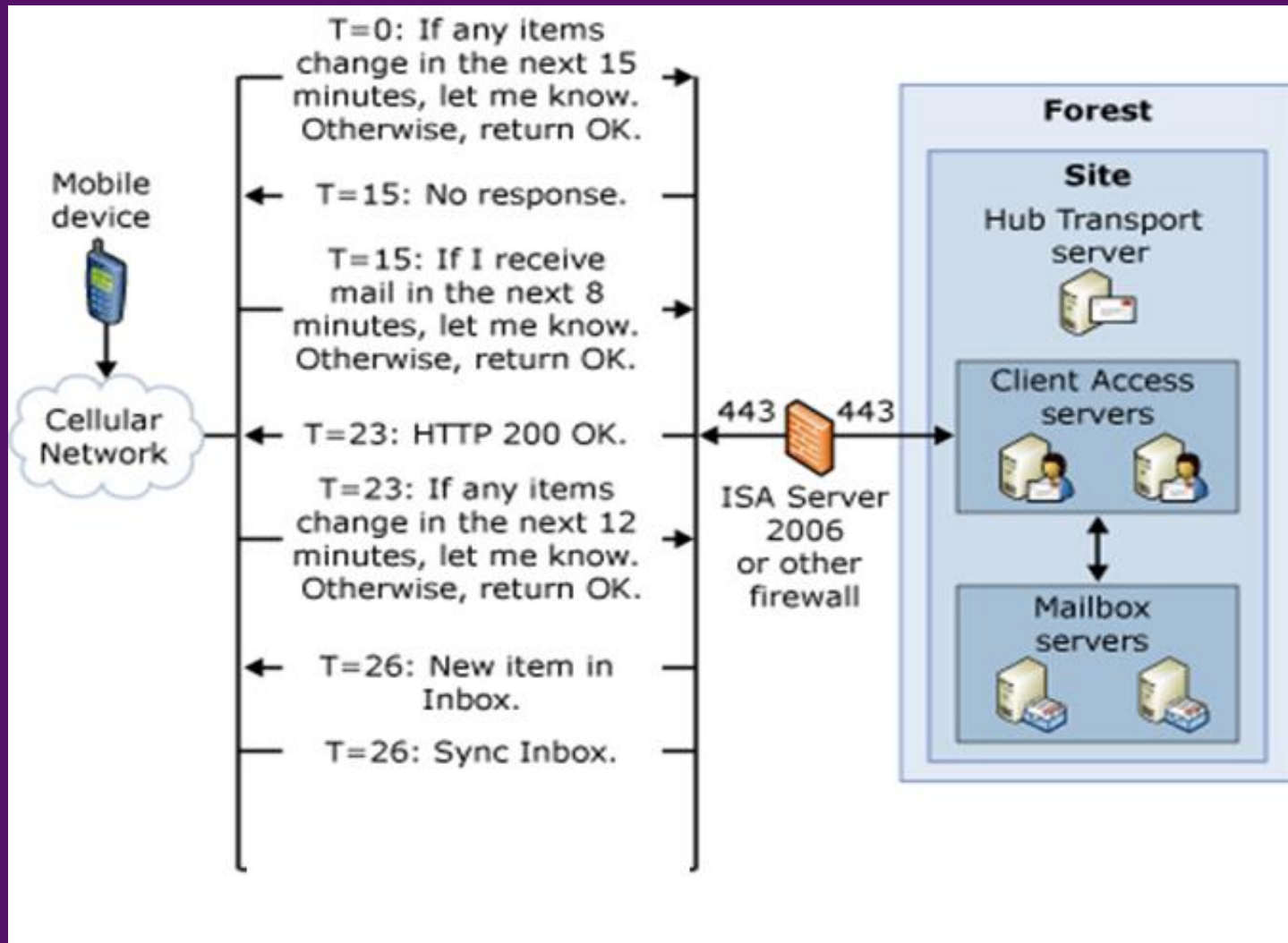
# Direct Push – Increase Heartbeat (HB) by 4 Minutes



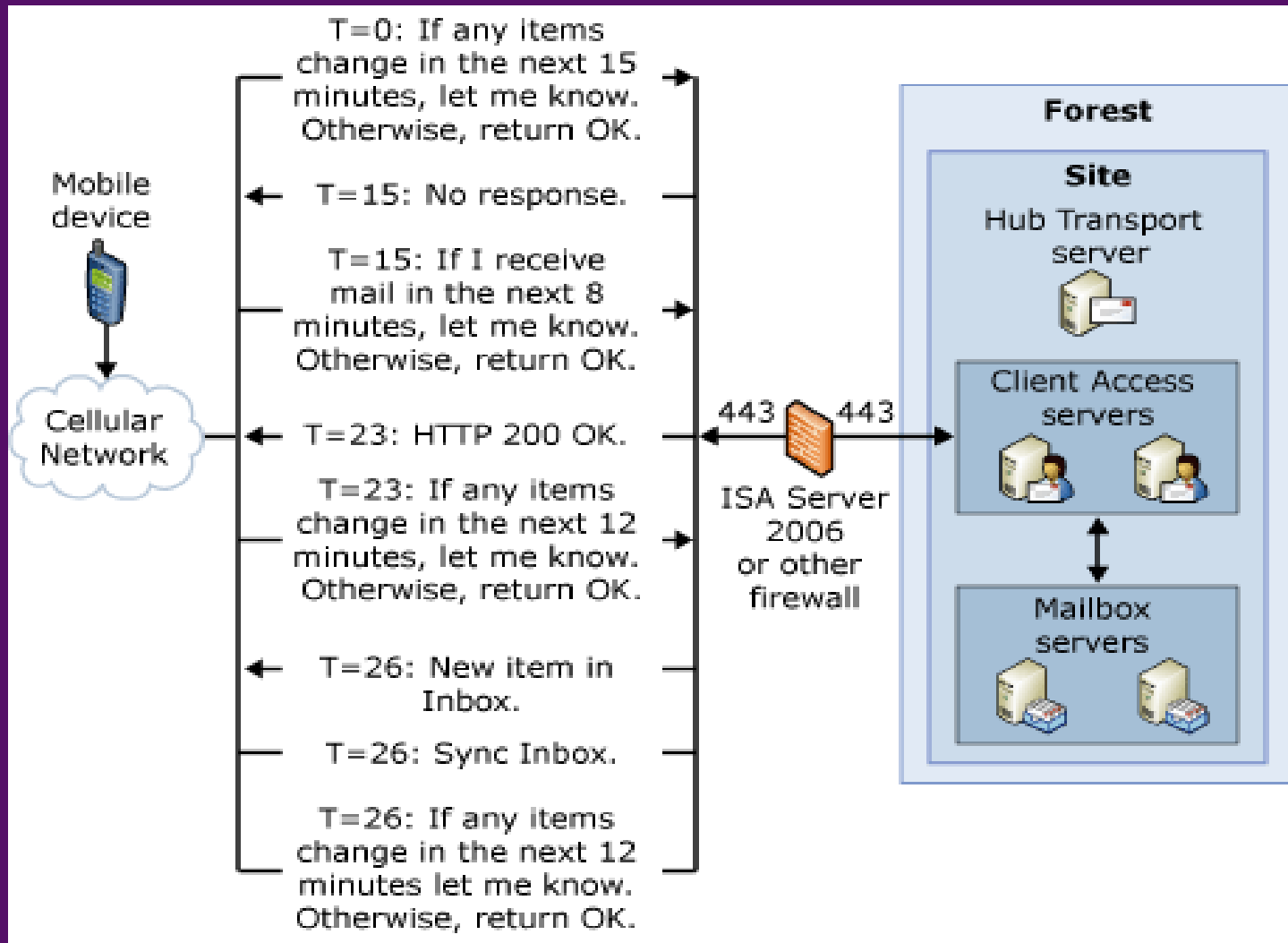
# Direct Push – New Item in Mailbox



# Direct Push – Sync New Item



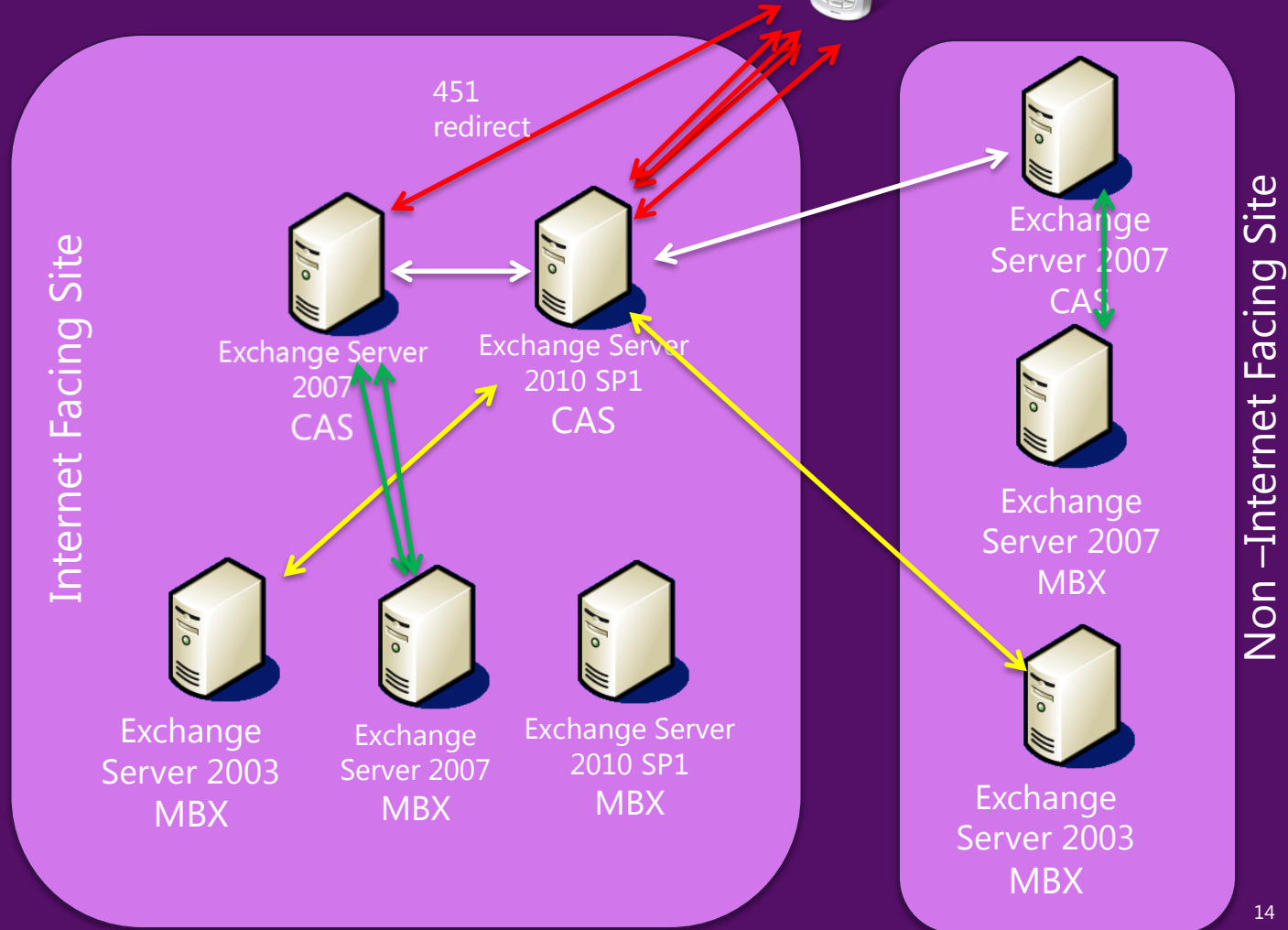
# Direct Push – Sync Request with 12 Minute HB



# How does this work? Coexistence of 2003/2007/2010

...the further you go.

- ↔ HTTPS Traffic (External)
- ↔ HTTPS Traffic (Internal)
- ↔ RPC Traffic (Internal)
- ↔ HTTP Traffic (Internal)



- Direct Connect to 2003 MBx
- Proxy to 2007
- 2007 Redirect
- 2007 Cross Site Proxy

## How does this work?

### Load Balancing EAS

## It is all about affinity!

- This is one of the most difficult things to get right in Exchange 2010.
- Always refer to the vendor of your load balancer for their instructions on configuring the load balancer for EAS affinity.

### ActiveSync Persistence Issues

- Client IP – all clients may have same IP range from the carrier
- SSL ID – Some ActiveSync clients change the ID often
- *Authorization Header is preferred.*

# How do I troubleshoot Active Sync Issues?

## Tools you can use

- Remote Connectivity Analyzer (Testing External Access)
- EMS Scripts
- Log Parser
- Exchange Active Sync Reporting Script
- Exchange Control Panel Active Sync Logging



# How do I troubleshoot Active Sync Issues?

## Exchange Remote Connectivity Analyzer

- <https://www.testexchangeconnectivity.com/>
- Test connectivity from the outside world to your EAS infrastructure and highlights any issues

❌ ExRCA is testing Exchange ActiveSync.  
The Exchange ActiveSync test failed.

- Test Steps
  - ❌ Attempting the Autodiscover and Exchange ActiveSync test (if requested).  
Testing of Autodiscover for Exchange ActiveSync failed.
    - Test Steps
      - ❌ Attempting each method of contacting the Autodiscover service.  
The Autodiscover service couldn't be contacted successfully by any method.
        - Test Steps
          - ❌ Attempting to test potential Autodiscover URL <https://tghb.org/AutoDiscover/AutoDiscover.xml>  
Testing of this potential Autodiscover URL failed.
            - Test Steps
              - ✅ Attempting to resolve the host name tghb.org in DNS.  
The host name resolved successfully.
                - Additional Details
              - ❌ Testing TCP port 443 on host tghb.org to ensure it's listening and open.  
The specified port is either blocked, not listening, or not producing the expected response.
                - ➡ [Tell me more about this issue and how to resolve it](#)
                - Additional Details

## How do I troubleshoot Active Sync Issues?

# Exchange Management Shell

- Easily discover which mobile devices are active in your organization by executing the `Get-ActiveSyncDevice` cmdlet

```
Get-ActiveSyncDevice  
[-Identity <ActiveSyncDeviceIdParameter>]  
[-DomainController <Fqdn>] [-Filter <String>]  
[-Organization <OrganizationIdParameter>]  
[-OrganizationalUnit <OrganizationalUnitIdParameter>]  
[-ResultSize <Unlimited>] [-SortBy <String>]
```

```
Get-ActiveSyncDevice -Mailbox <MailboxIdParameter>  
[-DomainController <Fqdn>] [-Filter <String>]  
[-Organization <OrganizationIdParameter>]  
[-OrganizationalUnit <OrganizationalUnitIdParameter>]  
[-ResultSize <Unlimited>] [-SortBy <String>]
```

- Use the `Get-ActiveSyncDeviceStatistics` to view statistical information

# How do I troubleshoot Active Sync Issues?

## Log Parser

- From the Exchange Team Blog (<http://blogs.technet.com/b/exchange/archive/2006/02/14/419562.aspx>)
- This parses through the IIS logs on the 2007/2010 CAS server (MBX for Exchange 2003)
- You must first create a sql statement for the parser
- An example from the latest issue with iOS 6.1.1

```
SELECT COUNT(*),MyDeviceId AS DeviceId,TheUserId AS UserId,MajAgent,MinAgent
USING
    EXTRACT_VALUE(cs-uri-query,'DeviceId') AS MyDeviceId,
    EXTRACT_VALUE(cs-uri-query,'User') AS TheUserId,
    TO_INT(SUBSTR(SUBSTR(cs(User-Agent),INDEX_OF (cs(User-Agent), '.'),4),1,3)) AS MinAgent,
    TO_INT(SUBSTR(SUBSTR(cs(User-Agent),INDEX_OF (cs(User-Agent), '/'),5),1,4)) AS MajAgent
FROM '[LOGFILEPATH]' WHERE cs-uri-query LIKE '%MeetingResponse%' AND (MajAgent=1002 AND MinAgent<146)
GROUP BY DeviceId,UserId,MajAgent,MinAgent
ORDER BY COUNT(*) DESC
```

```
C:\Program Files (x86)\Log Parser 2.2>LogParser.exe -i:II$W3Cfile:CAS_101.SQL
```

User	DeviceId	Hits
<u>contoso\user1</u>	AppIF1HJM2J8F8H2	29341
<u>contoso\user2</u>	AppIF17JF1EWF8H2	8005
<u>contoso\user3</u>	AppIC39JLJ16F8H2	1521

Statistics:

-----  
Elements processed: 662467

Elements output: 3

Execution time: 99.38 seconds (00:01:39.38)

# How do I troubleshoot Active Sync Issues?

## Active Sync Reporting Script

- From the Exchange Team Blog (<http://blogs.technet.com/b/exchange/archive/2012/01/31/a-script-to-troubleshoot-issues-with-exchange-activesync.aspx>)
- Again we are parsing through the IIS logs on the 2007/2010 CAS server (MBX for Exchange 2003)

### What can you do with this script?

You can process logs using this script to retrieve the following details:

1. Hits by user/Device ID (users/devices with maximum number of requests sent to server)
2. Hits per hour/day (helps in determining the frequency of requests sent by user/device, time value is entered in seconds)
3. Hits by device with specified threshold limit (here you can specify a limit for hits/requests, i.e. all users who are sending 1000 requests per hour/day, etc.)
4. CSV export of results
5. HTML report of results
6. E-mail reports for monitoring (CSV/HTML formats)

# Sample Hourly Script Output

Date	User	DeviceId	DeviceType	User-Agent	Hits	Ping	Sync	FolderSync	Se
12/7/2011 0:00	contoso\Ahs.David	Appl87458F5G3NR	iPhone	Apple-iPhone2C1/802.117	9	4	3	2	
12/7/2011 1:00	contoso\Ahs.David	Appl87458F5G3NR	iPhone	Apple-iPhone2C1/802.117	7	5	0	2	
12/7/2011 2:00	contoso\Ahs.David	Appl87458F5G3NR	iPhone	Apple-iPhone2C1/802.117	4	3	0	1	
12/7/2011 3:00	contoso\Ahs.David	Appl87458F5G3NR	iPhone	Apple-iPhone2C1/802.117	6	4	0	2	
12/7/2011 4:00	contoso\Ahs.David	Appl87458F5G3NR	iPhone	Apple-iPhone2C1/802.117	5	3	0	2	
12/7/2011 5:00	contoso\Ahs.David	Appl87458F5G3NR	iPhone	Apple-iPhone2C1/802.117	6	4	0	2	
12/7/2011 6:00	contoso\Ahs.David	Appl87458F5G3NR	iPhone	Apple-iPhone2C1/802.117	4	3	0	1	
12/7/2011 7:00	contoso\Ahs.David	Appl87458F5G3NR	iPhone	Apple-iPhone2C1/802.117	6	4	0	2	
12/7/2011 8:00	contoso\Ahs.David	Appl87458F5G3NR	iPhone	Apple-iPhone2C1/802.117	6	4	0	2	
12/7/2011 9:00	contoso\Ahs.David	Appl87458F5G3NR	iPhone	Apple-iPhone2C1/802.117	5	3	0	2	
12/7/2011 10:00	contoso\Ahs.David	Appl87458F5G3NR	iPhone	Apple-iPhone2C1/802.117	6	4	0	2	
12/7/2011 11:00	contoso\Ahs.David	Appl87458F5G3NR	iPhone	Apple-iPhone2C1/802.117	4	3	0	1	
12/7/2011 12:00	contoso\Ahs.David	Appl87458F5G3NR	iPhone	Apple-iPhone2C1/802.117	17	7	6	4	
12/7/2011 13:00	contoso\Ahs.David	Appl87458F5G3NR	iPhone	Apple-iPhone2C1/802.117	4	3	0	1	
12/7/2011 14:00	contoso\Ahs.David	Appl87458F5G3NR	iPhone	Apple-iPhone2C1/802.117	6	4	0	2	
12/7/2011 15:00	contoso\Ahs.David	Appl87458F5G3NR	iPhone	Apple-iPhone2C1/802.117	5	3	0	2	
12/7/2011 16:00	contoso\Ahs.David	Appl87458F5G3NR	iPhone	Apple-iPhone2C1/802.117	6	4	0	2	
12/7/2011 17:00	contoso\Ahs.David	Appl87458F5G3NR	iPhone	Apple-iPhone2C1/802.117	16723	16722	0	1	
12/7/2011 18:00	contoso\Ahs.David	Appl87458F5G3NR	iPhone	Apple-iPhone2C1/802.117	24620	24618	0	2	

# How do I troubleshoot Active Sync Issues?

## Active Sync Logging

- There are two methods, using PowerShell or the Exchange Control panel.

### PowerShell Method

Enable the logging on the affected mailbox:

```
Set-CASMailbox alias -ActiveSyncDebugLogging:$true
```

**Note:** Get-CASMailbox will not show whether ActiveSyncDebugLogging is on or off unless you add the -ActiveSyncDebugLogging parameter.

Reproduce whatever issue you're dealing with, then gather the logs:

```
Get-ActiveSyncDeviceStatistics -Mailbox alias -  
GetMailboxLog:$true -NotificationEmailAddress
```

This will output the log to the screen (in 2010 and above), and email a copy of it to your email. Easy!

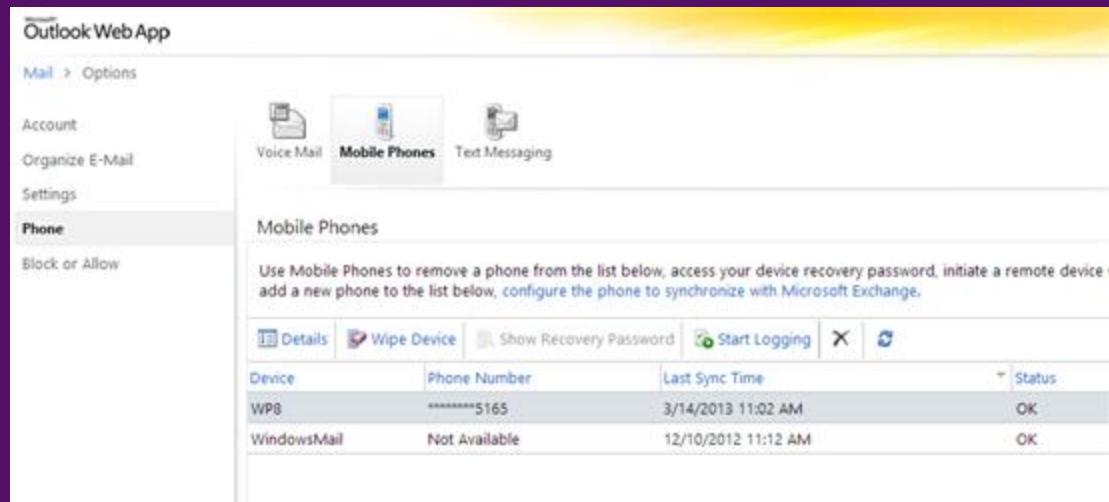
# How do I troubleshoot Active Sync Issues?

## Active Sync Logging

- There are two methods, using PowerShell or the Exchange Control panel.

### Exchange Control Panel

This method allows end-users to easily gather their own logs through OWA -> ECP. Simply log into ECP and go to Options -> Phone -> Mobile Phones. This page contains a list of the EAS devices for the mailbox, and users can enable logging and retrieve it from here. The log will be sent to the user's mailbox.



Outlook Web App

Mail > Options

Account  
Organize E-Mail  
Settings  
**Phone**  
Block or Allow

Voice Mail **Mobile Phones** Text Messaging

Mobile Phones

Use Mobile Phones to remove a phone from the list below, access your device recovery password, initiate a remote device wipe, or add a new phone to the list below, configure the phone to synchronize with Microsoft Exchange.

Details Wipe Device Show Recovery Password Start Logging X Refresh

Device	Phone Number	Last Sync Time	Status
WP8	*****5165	3/14/2013 11:02 AM	OK
WindowsMail	Not Available	12/10/2012 11:12 AM	OK

# Allow Block Quarantine

What is ABQ?

- An Exchange 2010 native way to control EAS access to your Exchange infrastructure.
- This can be configured via the ECP or Exchange Management Shell
- There are three models:
  - **Allow** all devices to synchronize with the server, except for:
    - Those assigned to users' block lists
    - Those device models or device type groups that are explicitly blocked or quarantined
  - **Block** all devices from retrieving information from the server except for:
    - Those assigned to users' allow lists
    - Those devices models or device type groups that are explicitly allowed or quarantined
  - **Quarantine** new devices so that administrators can grant or block access:
    - By adding devices on an individual basis to a user's allow or block list
    - By adding the model or device type groups to the organization-wide list as blocked or allowed



# Quarantine Model Notifications

Your mobile phone is temporarily blocked from synchronizing using Exchange ActiveSync until your administrator grants it access.

Microsoft Outlook



To: Jay Cotton

Wednesday, September 26, 2012 10:34 AM

Your mobile phone is temporarily blocked from accessing content via Exchange ActiveSync because the phone has been quarantined. No action is necessary on your part. Content will automatically be downloaded as soon as access is granted by your administrator.

This device is not currently allowed to connect to tghb.org. The administrator will get back to you shortly.

Information about your mobile phone:

Device model:	TestActiveSyncConnectivity
Device type:	TestActiveSyncConnectivity
Device ID:	567772202
Device OS:	
Device user agent:	Microsoft-Server-ActiveSync/12.0+(TestExchangeConnectivity.com)
Device IMEI:	
Exchange ActiveSync version:	12.0
Device access state:	Quarantined
Device access state reason:	Global

Sent at 9/26/2012 10:34:00 AM to Jay.Cotton@TGHB.org.

A device that belongs to tghb\jwc2v has been quarantined. Exchange ActiveSync will be blocked until you take action.

Microsoft Outlook



To: Jay Cotton

Wednesday, September 26, 2012 10:34 AM

The Exchange ActiveSync service has quarantined the mobile phone listed below. It won't be able to synchronize Exchange content until you take action.

To perform an action for this device, go to the following page in the Exchange Control Panel:  
<https://mail.tghb.org/ecp/UsersGroups/EditEASMailbox.aspx?id=55201835-0439-4727-8bb7-ef5b563fc6ca>

Information about the device that triggered this notice:

User:	Jay.Cotton@TGHB.org
Device model:	TestActiveSyncConnectivity
Device type:	TestActiveSyncConnectivity
Device ID:	567772202
Device OS:	
Device user agent:	Microsoft-Server-ActiveSync/12.0+(TestExchangeConnectivity.com)
Device phone number:	
Device IMEI:	
Exchange ActiveSync version:	12.0
Device policy applied:	Default
Device policies status:	NotApplied
Device access state:	Quarantined
Device access state reason:	Global
Device access control rule:	

Sent at 9/26/2012 10:34:01 AM to Jay.Cotton@TGHB.org.,

User's Email Notification

Administrator's Email Notification

# Mobile Device Management in a BYOD World

## Summary

- What do you see as the strengths and challenges of BYOD?
- What can you as an administrator do to maintain control of the BYOD implementation
- What Troubleshooting tools and methods can you use to identify problems?
- How you control what devices connect to your Exchange infrastructure?