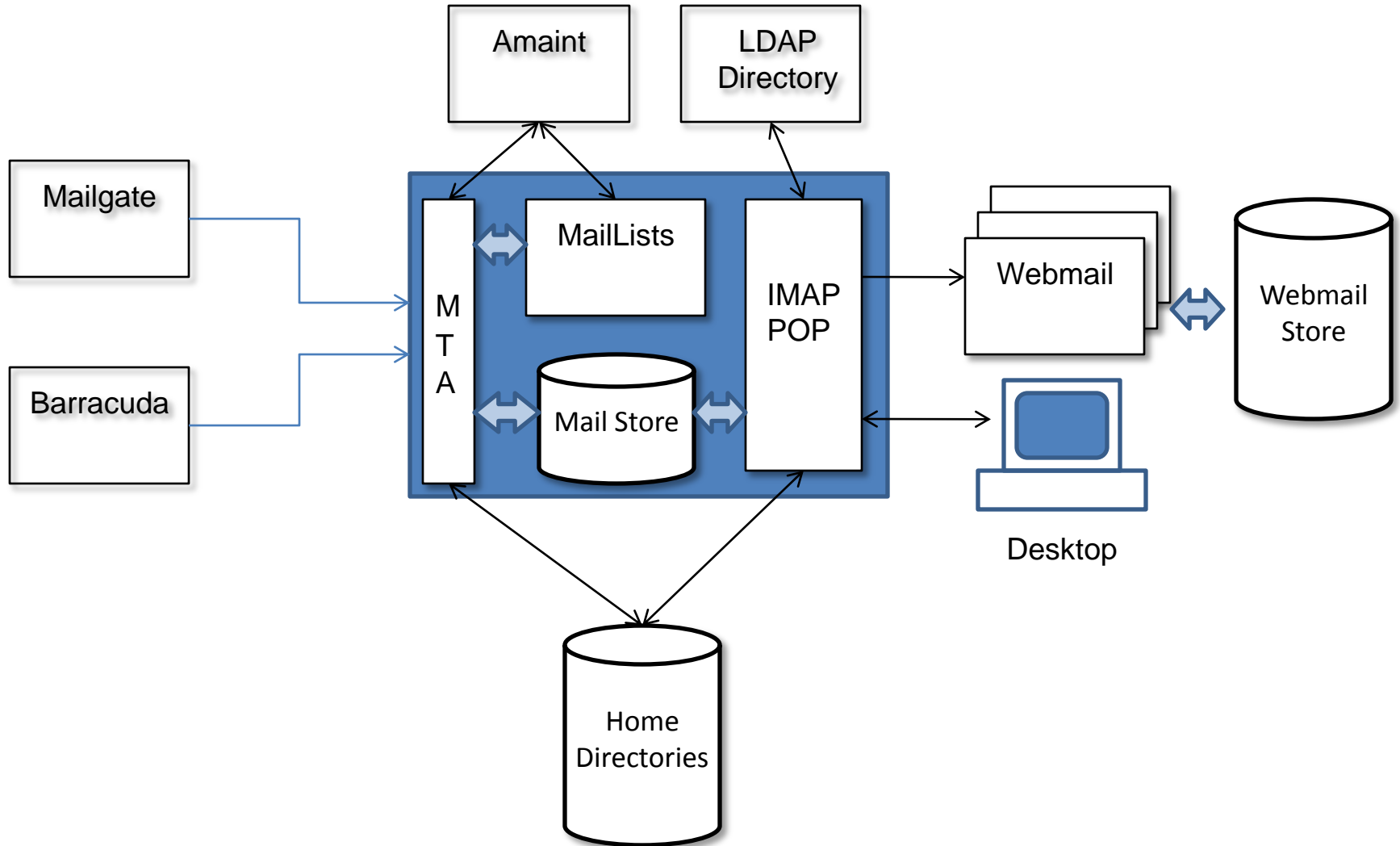


# Design of a Next-Gen E-mail and calendaring System

Steve Hillman  
([hillman@sfu.ca](mailto:hillman@sfu.ca))

# Current Architecture



# Why redesign what already works??

What we have now already works:

- It's fast
- It's reliable
- It's simple
- It's been working well for 15 years

# But...

- It's vulnerable to system failure, as it all runs on one server
- That one server is big and expensive to replace
- The Webmail interface is dated and has limited integration with desktop clients
- The future of Eudora, our officially supported desktop client, is uncertain
- We don't have a campus-wide calendar

So what do we want to  
accomplish?

# Objectives

- Fault tolerant
- Lightweight e-mail accounts
- Web-centric
- Easily expandable to support greater capacity
- Calendaring (integrated?)
- Minimal loss of existing functionality (excellent maillist support, solid POP/IMAP/SMTP, anti-spam)
- Others?

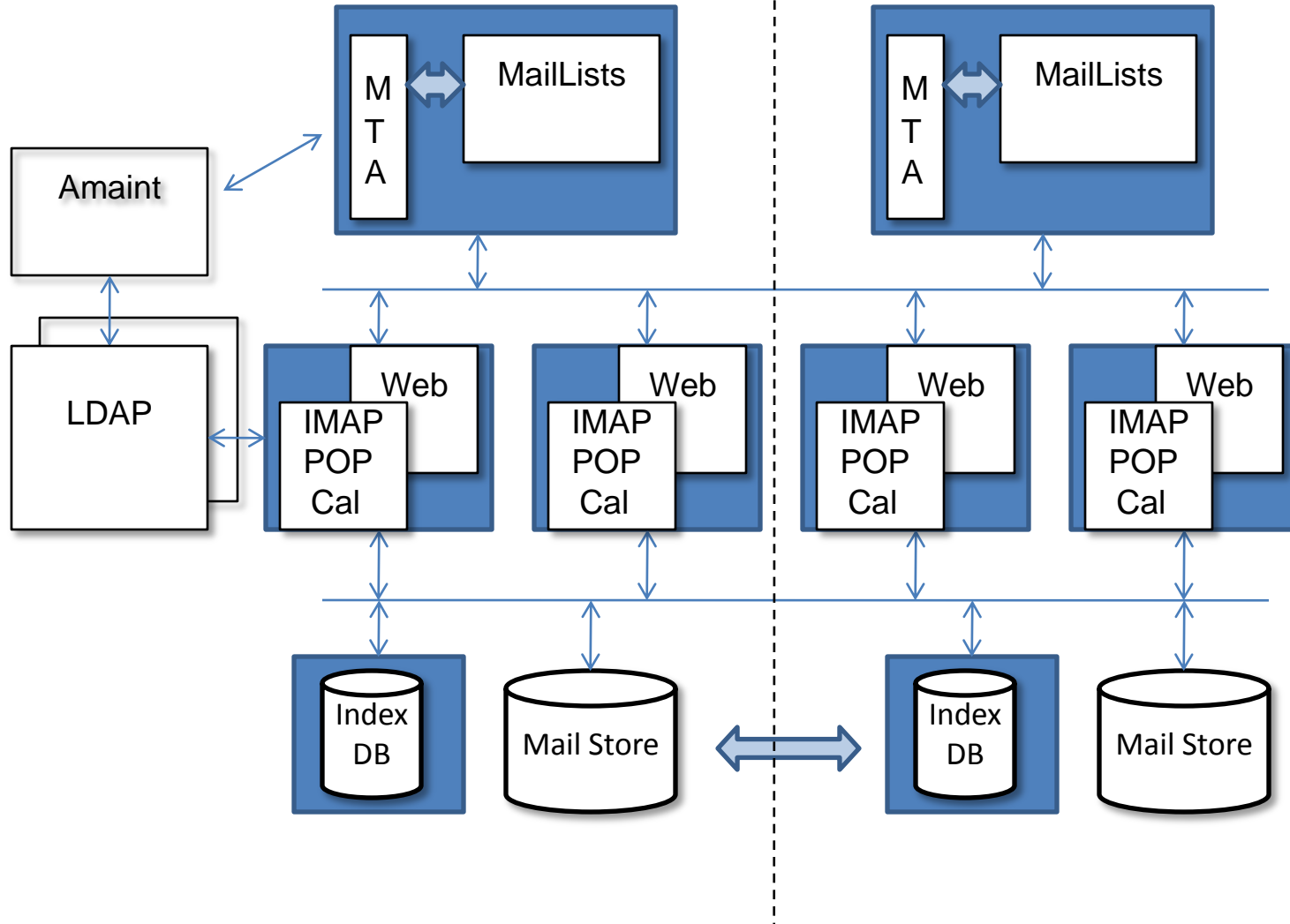
So What's our Plan?

## Smtptserver





# Fault Tolerance



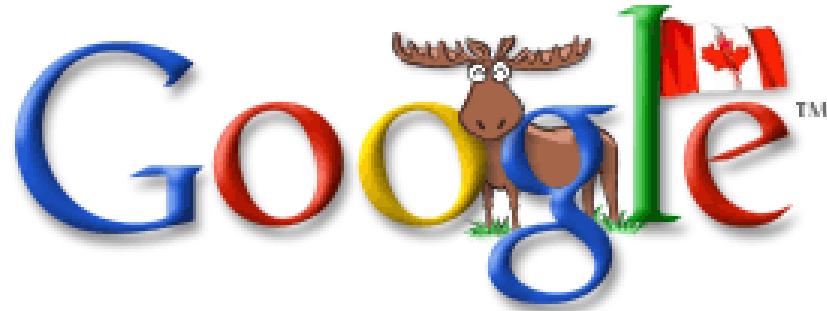
# Risks

- Fault tolerance = increased complexity
- Lightweight = New POP/IMAP & forward/filtering
- Easy Expansion = New storage architecture
- Web-centric = New Webmail architecture
- Integrated Calendaring = One software package to meet all needs

# Calendaring – What ARE our needs?

- Public calendars – Who gets to create them?
- Shared calendars – Any to Any model?
- Web-only, or must we support certain clients?
- Classroom scheduling integration?
- Mobile Sync for all?
- Who will administer the service?

# The State of the Art Today



But do you really want to hand over your private data to the most advanced data mining black box the world has ever known?

So, ok, Besides them..

# Zimbra

- Tightly integrated e-mail & calendar
- Web 2.0
- Open-Source
- Free version available

Demo

Zimbra: Inbox (37) - Mozilla Firefox

File Edit View Go Bookmarks Tools Help

http://roadshow.zimbra.com/zimbra/mail

preview projects Flickrbox Design links Switcher

Disable Cookies CSS Forms Images Information Miscellaneous Outline Resizer Tools View Source Options

View Issues - Mantis Flickrbox, Inc. - TimeFox Open source calendar and collaboration so... Zimbra: Inbox (37) Andy Budd: Blogography: No Margin for Er...

**Zimbra**

Mail View

**Folders**

- Inbox (37)
- Sent
- Drafts
- Junk
- Trash

**Searches**

- U Chicago

**Tags**

- CUSTOMERS (2)
- URGENT (2)

**Zimlets**

- Maps
- Contact Collector
- Evite
- Google Translator
- Salesforce
- Travel agent
- Traffic
- SMS
- RSS live!
- Arcade Games
- JSPSample
- Wikipedia
- Asterisk
- Search

6:28 PM

Done

john.rob@roadshow.zimbra.com  
Quota: 10.3 MB of unlimited

Search Search Builder

in:inbox

New Get Mail Tag Reply Forward Junk

From	Subject	Received
Andy Pflaum	My plans -- Original Message -- I'll be on UA 7 in the morning (arriving 11:00am PST on June 28th) or I'll be on BA 285 in mid-day (arriving 1:30pm PST on June 28th)	Jul 13
Andy Pflaum	Here are the pictures - Above -- see what happens when you mouseover the .jpg names	Jul 13
Mail Delivery System	Undelivered Mail Returned to Sender - This is the Postfix program at host roadshow.zimbra.com. I'm sorry to have to inform you that your mes	Jun 26
Andy Pflaum	Re: MySQL follow Up - I'll be on UA 7 in the morning (arriving 11:00am PST on June 28th) or I'll be on BA 285 in mid-day (arriving 1:30pm PST on June 28th)	Jun 07
Andy Pflaum	examples of indexed attachments - examples of indexed attachments There are 4 attachments to this email (Word and PDF files), which are provided.	May 21
pflaum, Jim	please share your Roadshow calendar with me -- pflaum@roadshow.zimbra.com [com] - agreed, that's what I did...you all should hav	(3) May 19
john robb	Thank you - Thank you for attending the product training session today. Please ping me if you have any questions. -Chris	(2) May 01
Kevin Henrikson	Photo - Bill Evans Jimmy Smith Monk	Apr 10
Chris Smith	Re: MySQL follow Up - UA 852 or UA 885 for the return?	(3) Apr 05
Kevin Henrikson	Marketing Review - The following meeting has been cancelled: Subject: Marketing Review Organizer: Kevin Henrikson <kevinh@zimbra.com> Time	(2) Apr 03
Kevin Henrikson	Cancelled: Sales Forecast - The following meeting has been cancelled: Subject: Sales Forecast Organizer: Kevin Henrikson <kevinh@zimbra.com>	Apr 03
Andy Pflaum	Stanford Tech & Entrepreneurship Mixer -- Forwarded Message -- Hi John, Andy great to meet you and we're delighted to have you guys from Zim	Mar 11
Jonathan Donaldson (jdon)	Accepted: Test Appointment	Mar 07
Chris, Andy	Fwd: Test dates - Chris, Yes, I can definitely do it next Thursday, although any date the following week will also work. Cheers, Andy	(2) Feb 08
Andy Pflaum	MySQL follow Up - Chris, We had a great meeting with MySQL at LinuxWorld. You can read more about their new offer at http://www.mysql.com/pro	Feb 01
Chris Smith	Meeting today - Hi, Just wanted to confirm the address for this afternoon's meeting. Meet us at: 1500 Fashion Island Blvd San Mateo CA 94404 Se	Jan 27
Jill Druschke	support for pricing document - Please use this document to develop a pricing schedule for our beta customers. Let's review the draft at Friday's	Jan 27
Jill Druschke	Fwd: October coverage for Zimbra website - For attachment search support. -- Forwarded Message -- From: John Robb <jrobb@zimbra.com>	Jan 27
Andy Pflaum	latest news	Jan 27
Chris Smith	Share Created - The following share has been created: Shared Item: Ross (appointment) Owner: Chris Smith Grantee: sample@roadshow.zimbra.com	Jan 27
Chris Smith	Here it is - (650) 780-4567 - Let's Meet for Lunch at your favorite place. -- Here is my new info: (650) 780-4567 (also checkout http://www.goo	Jan 19
Chris Smith	Fwd: XMLBeans or perhaps just an XML question...	(3) Jan 16
Chris Smith	Small Business Strategies: Dumping your display? Think again. -- Forwarded Message -- You received this newsletter because you subsc	12/13/2000
Chris Smith	Citrix information -- Forwarded Message -- Attached is the information you were asking about.	12/13/2005
Jane Druschke	Reschedule: Demo appointment - I forgot - I have team training on November 8. Could we do this on November 15 or November 16 instead?	11/8/2005
Jane Druschke	Demo appointment - Hi Zimbra team! Thanks for the information on your product for education. I'd love to set up a demo during your upcoming tr	11/8/2005
Jim Morrisroe	Share Created - The following share has been created: Shared Item: Calendar (appointment) Owner: Jim Morrisroe Grantee: sample@zimbra.com F	10/27/2000
Chris Smith	Meeting on Wednesday - Hi Jeff, Hope you had a nice weekend. Looking forward to seeing you later this week. PC Magazine's headquarters is at	10/3/2005
Chris Smith	Marketing Meeting - Marketing Meeting	9/8/2005
Dan Rudolph	FW: Event reminder: Liquid Data Meeting	8/26/2005
Chris Smith	Accept: Lunch with Bob - TENTATIVE: Lunch with Bob	(2) 8/23/2005
Satish Dharmaraj	Skype Hype - Please call me anytime today at 415-555-1212	8/23/2005
Chris, Scott	Sales Forecast - DECLINE: Sales Forecast	(2) 8/17/2005
Satish Dharmaraj	Damir - Trader Publishing Call - Damir - Trader Publishing Call	8/16/2005



Zimbra: 4/16 - 4/20 - Mozilla Firefox

File Edit View History Bookmarks Yahoo! Tools Help

http://roadshow.zimbra.com/zimbra/mail?skin=sky

**Zimbra** Find:  in  Email Messages  Google  Advanced Search

Chris Smith Quota:

Mail Address Book Calendar Chat Documents [beta] Options Help Log Off

View: Work Week New Refresh Day Work Week Week Month Schedule 4/16 - 4/20

**Calendars**

- ☒ Calendar
- ☐ Da Bears
- ☐ evite
- ☒ Formula 1
- ☐ Google
- ☒ Home
- ☐ Japanese Holidays
- ☒ Jim
- ☒ John
- ☒ Private
- ☒ Roland
- ☐ Test
- ☐ Calendar/Test 2
- ☐ Work

April 2007

2007	Mon, Apr 16	Tue, Apr 17	Wed, Apr 18	Thu, Apr 19	Fri, Apr 20
9 AM	9:00 AM coffee w/Joe Starbucks	9:00 AM PRD Review	9:00 AM coffee w/Joe Starbucks	9:00 AM coffee w/Joe Starbucks	9:00 AM coffee w/Joe Starbucks
10 AM	10:00 AM Marketing Meeting San Jose	10:30 AM	10:30 AM	10:00 AM Weekly PR call	10:30 AM
11 AM	11:00 AM Sales Forecast		11:30 AM Call Bill about Proj		
Noon		12:00 PM Mac World		12:00 PM Larry's Staff Call Con Call 888-434-1234	12:00 PM Business test
1 PM		1:00 PM Media Distribution Review			12:00 PM Wrap up call for t
2 PM	2:00 PM Go Running	2:00 PM Go Running	2:00 PM Go Running	2:00 PM Go Running	2:30 PM Go Running
3 PM	3:30 PM	3:30 PM Business Meeting	3:30 PM Weekly Staff C	3:30 PM	3:30 PM
4 PM	4:00 PM Marketing Review	5:00 PM	4:00 PM Satish Board		
5 PM			4:30 PM New Appointmt		

Find: 

in

Email Messages



Advanced Search

Quota: 1.8 GB of unlimited



Mail



Address Book



Calendar



Chat



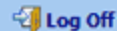
Documents [beta]



Options



Help



Log Off



Save



Cancel

## Folders

- Inbox (219)
  - Lead Lander
  - Sales (5)
- Sent (18)
- Drafts (7)
- Junk (155)
- Trash
- forums (5073)
- Junk E-mail
- quarantine
- Support (2959)

January 2007

S	M	T	W	T	F	S
31	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	1	2	3
4	5	6	7	8	9	10



9:35 PM

General

Mail

Mail Identities

POP Accounts

Mail Filters

Address Book

Calendar

Shortcuts

## Identities

Default Identity

Alf Murphy

Bill Paxson

## Identity Settings

Identity name: Default Identity

Identity Options

Signature

Advanced

Place signature: Below included messages

Mail Signature:

Greg Armanini  
Zimbra || The Leader in Open Source Messaging and  
Collaboration  
e|| garmarini@zimbra.com  
c|| 650-998-0483

☒ Add signature to all outgoing messages automatically



attachment: any

Search

Search Builder

john.rob@roadshow.zimbra  
Quota: 10.3 MB of unlimited

Attachment Basic Date Domain Folder Saved Search Size Zimlets Status Tag Time Remove All Close

**Basic Search**

From:

To / Cc:

Subject:

Content:

☐ Also search Junk

☐ Also search Trash

**Attachments**

☐ No Attachments

☒ Any Attachment

☐ Specific Attachment

**Domains**

☒ From ☐ To / Cc

☐ chicagogs.edu

☐ cisco.com

☐ good.com

☐ roadshow.zimbra.com

☐ zimbra.com

**Folders**

☐ Inbox

☐ Sent

☐ Drafts

☐ Junk

☐ Trash

**Tags**

☐ CUSTOMERS

☐ URGENT!

Mail View

New Get Mail Tag Reply Forward Junk

From	Subject	Received
Andy Pflaum	My plans - -- Original Message -- I'll be on UA 7 in the morning (arriving 11:00am PST on June 26	Jul 13
Andy Pflaum	Here are the pictures - Above -- see what happens when you mouseover the .jpg names	Jul 13
Mail Delivery System	Undelivered Mail Returned to Sender - This is the Postfix program at host roadshow.zimbi	Jun 26
john robb	Share Created - The following share has been created: Shared item: Notebook (Notebook Folde	May 22
Andy Pflaum	examples of indexed attachments - xamples of indexed attachments There are 4 attachments b	May 21
john robb	Share Created - The following share has been created: Shared item: Calendar (Calendar Folder,	May 19
john robb	Share Created - The following share has been created: Shared item: Calendar (Calendar Folder,	May 19
Jill Druschke	support for pricing document - Please use this document to develop a pricing schedule for	Jan 27
Chris Smith	Share Created - The following share has been created: Shared item: Ross (appointment) Owner	Jan 27

12:14 PM



in:inbox PO

Search

Search Builder

john.rob@roadshow.zimbra

Quota: 10.3 MB of unlimited

Mail View

Folders

- Inbox (35)
- Sent
- Drafts
- Junk
- Trash

Searches

- U Chicago

Tags

- CUSTOMERS
- URGENT!

Zimlets

- Maps
- Contact Collector

September 2006

S	M	T	W	T	F	S
27	28	29	30	31	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
1	2	3	4	5	6	7

11:30 AM

New Get Mail Tag Reply Forward Junk

From	Subject	Folder	Size	Received
Andy Pflaum	My plans - -- Original Message -- I'll be on UA 7 in the morning (arriving 11:00am PST on June 13)	Inbox	204 KB	Jul 13
Andy Pflaum	Re: MySQL follow Up - I'll be on UA 7 in the morning (arriving 11:00am PST on June 13)	Inbox	8 KB	Jun 07
Chris Smith	Re: MySQL follow Up - UA 852 or UA 885 for the return?	Inbox	3 KB	Apr 05
Chris Smith	Re: MySQL follow Up - I am arriving by flight CO 1049 See you soon 5	Inbox	2 KB	Apr 04
Chris Smith	Re: MySQL follow Up - I am arriving by flight CO 1049 See you soon 5	Inbox	1 KB	Apr 04
Andy Pflaum	MySQL follow Up - Chris, We had a great meeting with MySQL at LinuxWorld. You c	Inbox	3 KB	Feb 01

performance of our product even more by leveraging their new server. As you recall, their new release helped resolve bug 723. Additionally, they want us to bring the performance test server that you ordered.

Can you meet with them next Friday? If not, I am free on Feb 26th or 02/28/06.

They want to meet at their office:  
2510 Fairview Avenue East Seattle WA 98102

Additionally, Ari placed the order for the test server. The P.O. number is GR733454-8788Q and you can track the server with the FedEx tracking number 792906493888.

PO# GR733454-8788Q ☒ hat works for you?

Requestor: Chris Smith  
Description: Performance Test Server  
Total: \$5,723.17

--  
VP of Business Development



The screenshot shows a web browser window with an email client interface. On the left, there's a sidebar with a calendar for September 2006, where the 8th is highlighted. The main content area displays an email from 'Ari'. The email header shows it's from 'Ari' to 'Me' on 'September 8, 2006'. The body of the email contains a map of East Seattle, WA, with a red star marking the location of the office at 2510 Fairview Avenue. Below the map, the text reads: 'They want to meet at their office: 2510 Fairview Avenue East Seattle WA 98102'. The email continues with: 'Additionally, Ari placed the order for the test server. The P.O. number is GR733454-8788Q and you can track the server with the FedEx tracking number 792806493888. Call me and let me know what works for you?'. The email ends with 'Andy' and a signature 'VP of Business Development'.