

## **Executive Summary:**

The client, who is a healthcare systems provider, wanted to build an application which would enable patients to set up video conferencing appointments with physicians/system users. The need was to allow a user to send an invite for a video conference to others and all those who accepted the invite to be able to meet up in a group video conferencing setup. The idea was to eliminate locational constraints to the extent possible in communication. We enabled the video-logs feature to allow storing of data for future references if needed. The client wanted to optimize the application performance and reduce the network bandwidth usage. The development team at Mindfire implemented peer connectivity and performed several load time optimizations to achieve it.

## **About our Client:**

Client name: Confidential | Location: US | Industry: Healthcare

## Technologies:

Flex 4.5, Action script 3.0, FMS 4, PHP, JavaScript, XML, MySQL, SVN

#### Solution:

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We designed and implemented a web based video conferencing widget to be used as an extension to a health care application. The web application implements a link that allows users to schedule a meeting in advance and send an email with the invitation link to the patient/group of attendees. The attendees can then click on the link and join the conference at the scheduled time. The widget allows for recording of the conference sessions and presents users with the ability to get into group chats; besides allowing them to see each other and talk on an audio video interface. At the end of a conference session, the users can download their copy of the text chat and recorded video. Among the features we implemented were standard controls for video/audio including controls to mute/pause video stream and control the microphone and speaker volume. We also implemented the option to ping users by getting the widget on the machines to ring in order to get their attention. By way of consideration of bandwidth availability, we implemented peer-2-peer connections on demand in order to deal



with instances when recording of conference is not needed. Flash Media Server was used as the back end server and implemented meeting request synchronization and authentication for user widgets.

## Flow Diagram:





# Screenshots:

Pending Reque	ists	These are reque	sts that you have sent but	have not been seen l	by doctors.	
Create Appointment						×
Select Specialty	Internal Medicine	\$	Enter Zip Code: 333	10	Search	

**Screen 1**: After logging in, the patient searches for a physician, based on proximity, by specialty and zip code. The system performs the search in the database by specialty and zip code. Physicians within a 10-mile radius get identified.

Doctor Results	Please select the doctors you would want to send your request to. Or send a
Pharmacy Results	request to all doctors for a faster response.
Add Notes	Select Pharmacy>>
	Select Doctors From Below     Select All Doctors      Internal Medicine     FORT LAUDERDALE FL 33351     Select Dr.      Select Dr.
	Internal Medicine B17 S. University Drive, #106 DAVIE FL 33324
	Internal Medicine 201 NW 82ND AVE

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**Screen 2:** List of searched physicians. Patients can pick one and more physicians and send requests for a telemedicine session.



Dector Response	These are requests that you have sent but have not been seen by doctors.	
Booked Appointments	Request Date: 2015-03-23 04:14:00	
My Doctars		

**Screen 3**: Lists all pending requests from patients which have been sent to physicians and have not been seen.

Doctor Response     Bocked Appointments     My Doctors	Please select the doctors you would want to send your request to. Or send a request to all doctors for a faster response.  Select Pharmacy>>
	Select Becors Frem Below     Select All Decters      DEMO DOCTOR, MD      Vascular Surgery     boca ration FL 33324      Select Dr. DOCTOR
	Select Pharmacy >>

Screen 4: List of physicians the patient has sent requests for telemedicine sessions.

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Walling for Patients		
Booked Requests	Request Date: 2015-03-23 04:14:00	
	Patient Name : demo patient	
	Date Recorded : 2015-03-23 04:14:00	
	Patient Notes : I am having asthma form last 15 days	
	Accept this Request	

**Screen 5:** Physician account, from where a physician can see all telemedicine requests received from various patients.

the second state of the last state of the second state of the seco	Enter Data	00000-0004-0004	Select Hr	Select Min
ropose Appointment timing 1:	2015-03-23	(1111-1414-02)	07 Hours •	00 Mins
ropose Appointment uning 2.	2015-03-23		OB Hours	00 Mins
nter Notes:				
B J U 新 著 書 置 Fort Sas > Fort Far	nis: v Fort Format -	33843		
ok.				

**Screen 6:** Physician sends two availability time slots to the corresponding patient for scheduling the session. Patient has the option to choose the one which is more convenient.



Waiting for Patients			
Docked Requests	Request Date: 20	15-03-23 04:15:49	۲
	Patient Name	: demo patient	
	Date Recorded	: 2015-03-23 04:15:49	
	Patient Notes	: I am having asthma form last 15 days	
	Doctor Id	: 19	
	Your Notes	: OK	
	Proposed Time 1	: 03/23/2015 07:00:00 AM	
	Proposed Time 2	: 03/23/2015 08:00:00 AM	
	Proposed Time 2	: 03/23/2015 08:00:00 AM	

Screen 7: Physician can see all requests responded to and not yet confirmed by patients.

Booked Appointments	Basevent Date: 2	46.03.02.04-16-40	
	Request Date: 20	115-03-23 04:15:49	
My Doctors	Patient Name	: demo patient	
	Date Recorded	2015-03-23 04:15:49	
	Your Notes	: I am having asthma form last 15 days	
	Doctor Name	- Real Contractor	
	Doctor Notes	: OK	
	Available Appointments	<ul> <li>© 03/23/2015 07:00:00 AM</li> <li>O3/23/2015 08:00:00 AM</li> <li>Decline</li> </ul>	
	Carl and Anna	laterat .	

**Screen 8**: Patient seeing the response received from the physician for the requested telemedicine session. Based on availability, the patient can choose the session timing and confirm the same.



O Doctor Response	available.	
Osckad Appeintments		
My Doctors	Request Date: 2015-03-23 04:14:00	۲
	Patient Name : demo patient	
	Date Recorded : 2015-03-23 04:14:00	
	Your Notes : I am having asthma form last 15 days	
	Doctor Notes I OK	
	Appointment Time : 03/23/2015 07:00:00 AM	
	Conference Link will appear 15 mins before appointment	

**Screen 9**: Patient can see all booked/confirmed sessions and can join a session from there only 15 minutes before the session start time.

Waiting for Patients		
Booked Requests	Request Date: 2015-03-23 04:15:49	۲
	Patient Name : demo patient	
	Date Recorded : 2015-03-23 04:15:49	
	Patient Notes : 1 am having asthma form last 15 days	
	Your Notes : OK	
	Appointment Time : 03/23/2015 07:00:00 AM	
	Conference Link will appear 15 mins befare appointment	

**Screen 10**: Physician can see all the confirmed sessions from patients.

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Patient Name	: demo patient	
Date Recorded	: 2015-03-23 04:21:50	
Patient Notes	4	
Your Notes	:	
Appointment Tin	ne : 03/23/2015 04:30:00 AM	
Start Video C	onference	

Screen 11: Session joining link activated 15 minutes before the scheduled start time



Screen 12: Physician and patient in an audio/video session can do text chat as well.