Nexmail

Contextual Inquiry, Task Analysis and Design Sketches

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Email is the most widely user method for exchange digital message. People use email everyday and for many different purpose. Working professional heavily rely on email for their daily tasks and communication. A portion of their time is spend on coping with the existing system. We revisited the existing email system, and want to make it easier for business professionals to use.

Contextual Inquiry

Since email has such a broad and diverse usage pattern, our first goal was to scope it down to something that can be effectively tackled in the timeline of this course project. Being perplexed / overloaded by the long email threads ourselves, we decided to restrict our audience working professional with heavy email usage.

Participants

Jane, our first participant, is in her late 20's and is working as a Software Engineer at Microsoft. As a professional, email has been an integral part of our work life. She is one of the heavy email users, exchanging roughly 50 or so emails every day. But, like many others, her relationship with email hasn't been all sweet. She acknowledged that there are many areas that could be improved to make her interaction with email further better. Based on these credentials, she was a good representative good sample of our target audience.

We interviewed Jane on a Monday afternoon, at her office, during work hours. We observed Jane interacting with people over email. She also walked us through her past emails where she was having a discussion with her colleges. She uses more than one email clients (Outlook and Outlook Web Access) while at work. We asked her to pick a rather long email, having multiple replies and multiple participants, and walk us through the process of go through that email in both clients. She shared things that we likes and dislikes about one client over the other. Plus, she also mentioned some specific asks that she would like to see in a better email client. Most of the time we were just sitting quiet and observing what she is showing and listening to what she was saying. It was amazing that she had so much to share and talk about. Just few minutes into the session, we realized that it's getting hard to take all the notes so we decided to record (audio only) the session as well.

Jo, is a senior accountant works at a finance company in Bellevue. She has been in this job for about half a year. Before this, she's an accountant at a different company. She holds a variety of responsibilities at her job, including prepares accounting documents, setup appointment, meet and follow up with her clients. Most of her clients are oversees, therefore email and phone call are major method of her communication.

We interviewed Jo on a Saturday morning in a coffee shop. She brought her laptop, and her cellphone, which is her main communication device. As we chatted, we found out that she receives about 50-60 emails; replies more than 40 of them. She have used Outlook for many years, and have switched to Lotus in her current job. She's also a unique candidate that her job responsibility requires her to follow up with her client days or weeks after an initial conversation. Thus she often times need to dig out old email thread, and refresh her mind on what had happened. Most of time during our interview, Jo was doing the talking: explaining her time and complains with the email system. Jo is very exciting about what we are doing, and looking forward to play with our prototype.

Jessie, is a designer at Microsoft. She has been working in this job for half a year. Before that, she was working at a different design firm in Bellevue. At her daily job involves conduct user research, coming up with website UI designs, and deliver designs in Photoshop or Illustrator format. As artistic is a very subjective matter, discussion is a necessary part of her job.

Our interview took place over work day lunch time. I asked her to bring her work laptop to show us how she normally interact with email. We learned that Jessie receive about 40-60 work emails, and 20 personal email. She reads almost all of them, and replies almost all of her work email. Her personal email is mostly emails from newsletters, or some distribution alias. Most of her work email is regarding discussing a design concept, therefore she her expressed several times how she wish to navigate email faster.

Contextual Inquiry Results

In-line Replies

Jane makes use of in-line replies very frequently in her email conversations. She normally uses different font style and/or color to differentiate her replies from others. She also uses her alias/name in the start of her replies when there are more than two participants in a conversation and it is not obvious those reply it is. Even though she is used to this pattern, she is not quite happy with it. She explicitly expressed her desire to have a better experience where she has to spend less time in decorating her replies.

In addition to writing in-line replies, ***Jane*** also expressed her discontentment over the reading experience of in-line replies. When there are many participants in a conversation and they are contributing in the same section, it becomes harder to locate comments/replies of a specific

person. Plus, since everyone has kind of their own way of differentiating their replies, it easily turns into an inconsistent and messy user experience.

Jessie participates in a lot email discussion, many of her replies are an in-line editing or commenting of a previous reply. Because there's no standard way of adding the inline edits, different people uses different color, different font style. Sometimes, it's very difficult to tell the version's apart. This cause it to take longer to read the whole thread. When she does the editing, she try to be considerate and choose a font style that fits the email, and choose a color that can differentiate hers replies from other. She mentioned that it would be great if this step can be done automatically.

From: Charlie
Sent: Monday, April 30, 2012 12:27 PM
To: Chris, Michael, John, Peter
Subject: How In-line replies looks like today …

In-consistent and message In-Line replies View

Hi Guys,

I hope things are going well at your end. I am doing good as well. I just wanted you input on few things?

…………………………………………………
…………………………………………………

So, what do you guys thinks about this?
[Chris] I think it's a very good idea, you should go ahead with it.
[Michael] Sorry Charlie, but I think it's kind of lame, you can do better buddy.
[John] I agree with Michael here, you should probably meet with Alex and brainstorm this more.
[Peter] On seems to be on the right track Chris, keep it.

Thanks,
-Charlie

Figure : Typical Inline Reply

Navigating/Search Email

Jo needs to track a lot clients for her job, and she usually need to follow up with her clients days or weeks after initial conversation. This means she often times needs search in his email history, and re-read a specific email. Although search is a good tool, it still could not provide enough refinement to help reduced the search scope. Jo mentioned she often does not remember the exact search keywords, so her search result tends to be very generic. Even after she has located the email, she wish there's a better search functionality to help her filter the email content.

Jessie at work sends and receive a lot design documents to her co-worker. She also uses her email as storage space. She keeps her photo, document all in her email. She mentioned she does

so because she like to have convenient access to her files. However she mentioned with oversized inbox, it's becoming difficult for her to find the specific email message she's looking for.

Email Categorization

Both *Jo* & *Jessie* are working professional, and they both mentioned that their they receive too much email. And everything is piled in a single view. It's very difficult for them to prioritize what type of message they need to view, and what comes after. Jessie deals this problem by creating multiple email address. One email address for each type of message. For example, one for mailing list, one for notifications, one for personal chats, etc. Jessie wish her email can be auto or semi-auto categorized into different group. So she can view the important group of email first, and than view the other group. Jo expressed a similar wish. Although she wants her email to be grouped by urgency, certain email from certain people should always be on the top. Other type of communication that is not very urgent can be put down later.

Both *Jo* & *Jessie* understand that Gmail has filter feature, and Outlook has rule feature, but they complain it's too manual, and it's too difficult to use. They would like to have a simpler UI for this.

Although this is a great feedback, we will not target this in this project.

Inconsistent/ Broken Email View

Another thing that annoys *Jane* a lot is the inconsistent view of emails when participants use different email clients. She showed us an email conversation in **Outlook** which was presented quite decently until one of her colleagues replied via **Outlook Web Access (OWA)** and it messed-up OLK's conversation view. She expressed that the clients should be smart enough to handle this kind of stuff since it is a very common scenario for her to get into.

This is a reply from a different Client ....

From: Haroon Barri
Sent: Monday, April 30, 2012 12:32:17 PM
To: Haroon Barri
Subject: RE: How In-line replies looks like today ...

- Headers are in-consistent
- Formatting is borken

From: Charlie
Sent: Monday, April 30, 2012 12:27 PM
To: Chris, Michael, John, Peter
Subject: How In-line replies looks like today ...

Hi Guys,

I hope things are going well at your end. I am doing good as well. I just wanted you input on few things?

…………………………………………

…………………………………………

So, what do you guys thinks about this?

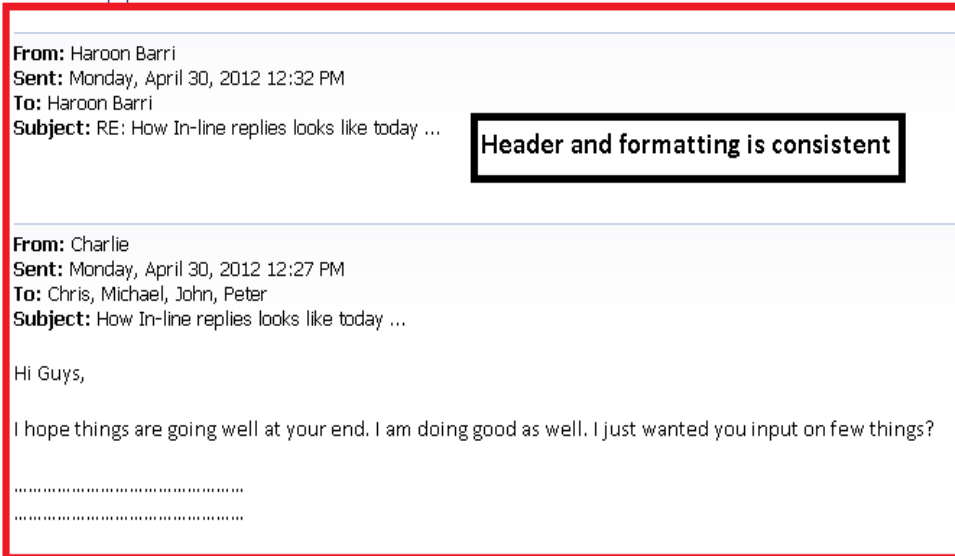[Chris] I think it's a very good idea, you should go ahead with it.

[Michael] Sorry Charlie, but I think it's kind of lame, you can do better buddy.

[John] I agree with Michael here, you should probably meet with Alex and brainstorm this more.

[Peter] On seems to be on the right track Chris, keep it.

Thanks,

This is a reply still from the same client ...

From: Haroon Barri
Sent: Monday, April 30, 2012 12:32 PM
To: Haroon Barri
Subject: RE: How In-line replies looks like today ...

Header and formatting is consistent

From: Charlie
Sent: Monday, April 30, 2012 12:27 PM
To: Chris, Michael, John, Peter
Subject: How In-line replies looks like today ...

Hi Guys,

I hope things are going well at your end. I am doing good as well. I just wanted you input on few things?

………………………………………
………………………………………

So, what do you guys thinks about this?
[Chris] I think it's a very good idea, you should go ahead with it.
[Michael] Sorry Charlie, but I think it's kind of lame, you can do better buddy.
[John] I agree with Michael here, you should probably meet with Alex and brainstorm this more.
[Peter] On seems to be on the right track Chris, keep it.

Thanks,
-Charlie

Figure – showing a typical broken conversation view

Composition of Email View

Jane also touched on the information normally displayed on replies from a long conversation. She liked the fact that the Header/Envelope information (e.g. from, to, cc, sent time, etc.) is normally presented, but to her, most of that information is not needed at all. While she sees the importance of having the **Sender** information with each reply, she finds absolutely no significance in seeing **Subject** with each reply and relatively less importance in seeing **Sent** time. Although this is more of a design issue in Outlook, it's different in Gmail and Hotmail. We shared the same view point with Jane, and will take in to consideration in our design.

From: Michael

Sent: Monday, April 30, 2012 12:56 PM
To: Chris, Michael, John, Peter, Charlie
Subject: RE: Same Header repetition in (Ctrl) ply ...

Reply from Michael ...

From: Peter
Sent: Monday, April 30, 2012 12:45 PM
To: Chris, Michael, John, Peter, Charlie
Subject: RE: Same Header repetition in each reply ...

Reply from Peter ...

Some less significant Headers repeated in all the replies

From: Chris
Sent: Monday, April 30, 2012 12:32 PM
To: Chris, Michael, John, Peter, Charlie
Subject: RE: Same Header repetition in each reply ...

Reply from Chris ...

From: Charlie
Sent: Monday, April 30, 2012 12:27 PM
To: Chris, Michael, John, Peter
Subject: Same Header repetition in each reply ...

Hi Guys,

I hope things are going well at your end. I am doing good as well. I just wanted you input on few things?

....
....

To-Do List / Shopping List / Reminders

Initially we thought this would be an interesting scenario that our interviewer would like. It turns out that none of our participants use email as the primary medium of organizing their to-do tasks, reminders, etc. They mostly rely on physical mediums like of post-it notes and diaries. They find those simpler, easier and natural.

Task Analysis Questions

1. Who is going to use the system?

Our system will be used by existing email users. Those, who know how to use email clients to check their emails and send replies. But, our main focus is towards those who have to deal with a significant load of email every day and are in a dire need of a solution that can make their email browsing faster and cleaner.

2. What tasks do they now perform?

- Use email to carry out discussions
- Engage in conversations with multiple participants using different clients
- Browse long email threads to find specific information (e.g. replies from a specific person, replies on a specific day, etc.)
- Contribute to discussions by making regular and/or in-line replies
- Get added to a conversation at a later point, so need to understand the context and contribute
- Use email as storage device.

3. What tasks are desired?

- Efficient way of browsing long email conversations – as evident from the contextual inquiry exercise, our participants have to deal with this all the time. Sometimes they need to look for information from a specific person and sometimes from a specific day. This has been a time consuming process for them and they need something better here
- Less overhead when writing in-line replies – *Jane* and *Jessie* explicitly asked for an efficient way of composing in-line replies. They want to spend time in composing their replies and not decorating them
- Better representation when reading in-line replies – our participants need to deal with this all the time, they would highly appreciate a solution that can make it easier to browse in-line responses.
- Consistent user experience even when participants are using different email clients – as we learnt from *Jane*, it becomes very annoying when one reply messes up your conversation view. It's just distracting and needs to be fixed
- All participants expressed better organization of the email conversation when threads are forked
- Attachments are preserved on subsequent replies, and they should be easier to be found.
- Better and efficient way of searching emails, and searching replies inside long email thread.
- Better categorization of emails (e.g. emails sent to distribution lists should have its own separate view than the ones sent directly to me)

4. How are the tasks learned?

We are not expecting a significant learning curve for the customers in order to use our system. Since we are targeting existing email users, they would already know how to operate email clients to interact with their emails. At the same time, most of the desired tasks are not completely brand new tasks, rather mainly improvements to existing ones, so we are not

anticipating any trainings or special guide for the users either. We need to just make sure that our new features are discoverable enough, and easy to use.

5. Where are the tasks performed?

The tasks can be performed anywhere where the user have access to their email. Since we are targeting customers with a rather higher email load, we can easily expect that most of the time, they would be running short on time while performing these tasks.

6. What's the relationship between customer & data?

It may be personal data (i.e. personal email account of the customer) or business data (i.e. work email account of the customer). But, since our solution is only focused towards the presentation layer of the data, we are not concerned about the storage, retrieval, security, authentication, access rights or any such stuff related to the data. We are relying on the existing email clients to provide that.

7. What other tools does the customer have?

There are existing email clients (e.g. Outlook), which are being used by the customers today. They do let you perform some of these tasks, but not in the most efficient manner.

8. How do customers communicate with each other?

With our solution, we are not changing any existing communication model or introducing any new one. Our only focus is towards the presentation of the data; it would still be following through the same system, in and out, and following the same practices.

9. How often are the tasks performed?

Looking at our target audience, these tasks are going to be very, very frequent. We are expecting these to be performed multiple times a day, especially during the week days.

10. What are the time constraints on the tasks?

Since we are targeting customers with a rather higher email load, we can easily expect that most of the time, they would be in a hurry while performing these tasks. Plus, they would be performing these frequently; they will not have time to enable/disable some features when starting to perform these tasks. So, we need to be very particular in what information we present to them and how we do that. We cannot increase the time or number of clicks it takes to perform these tasks today.

11. What happens when things go wrong?

Since we are dealing with only the presentation layer, there is less room for any task-related errors or catastrophes. So, we are not concerned about data loss or recovery. Some users may struggle in understanding the new interface, in that can they can use the help.

Task Description

John is a 30 year old professional; living in Redmond, WA. He is working at Microsoft Corporation, as a Software Engineer, for 5 years now. He is good at his job and aspires to do even better. Email is an integral part of his job since most of the communication during his day is carried over email. So, the first thing John does after getting to the office is checking emails.

Task 1: Easy - Read and Make Quick Reply

It is Monday morning, 9:15 am. John arrives at his office. After settling in, he fired up the email client and started checking his emails. He has been mentoring a new hire, Chris, for few months now. Every Monday, Chris sends out a status update to John high-lighting his progress over the last week. While going through the emails, John quickly spotted the email from Chris. He read through the message, everything looked on-track, so he just thanked Chris for the update.

Task 2: Moderate - Navigate Long Email Thread

John is also working on a very high profile project alongside two other engineers, Amanda and Michael. They have been working on the design of the project for a couple of weeks now. There were few open issues which they needed feedback on. Amanda started an email conversation among the all the stake holders, John was following and contributing to the discussion until yesterday, when he had to take a day off since he was sick. Today, John was feeling better and he decided to show up to work. While walking towards his office, he ran into Amanda who told him that yesterday, their manager had few concerns about the design and was looking for more clarification in some of the areas. Since, John worked on that area most; Amanda was relying on him to tackle those and told him that their Manager is anxiously waiting for your response. Hearing this, John went straight to his office and fired up his email client. He browsed to the conversation related to "Open Issues in High Profile Project". He looked into the replies just from his Manager, Dave Smith, and responded to him.
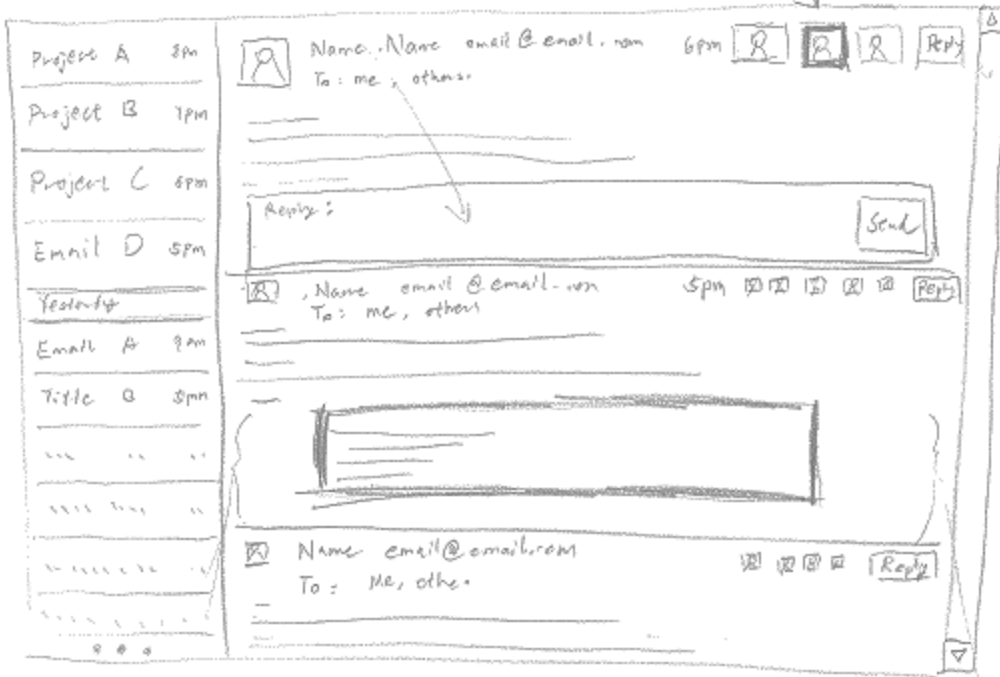
Task 3: Difficult - Reply with In-line Comments

John works with a partner team in China. Due to the time zone difference, most of the communication between John and the China team happens over email. One afternoon, he had to accompany his wife to the doctor, so he arrived late at the office. As always, the first thing we did was checking his emails. He noticed a conversation going-on about the "Next Generation Email Client" project that he is working on with the China Team. He navigated to that email and jumped right to the first message to understand what is going on. He then browsed through the other replies. While going through it, he noticed a question from Xiang Lie. He replied to that in-line and continued browsing other messages.

Storyboards

During the initial design, we dissected the UI into three sections: Reply box, Inline Reply, and Scroll Bar.
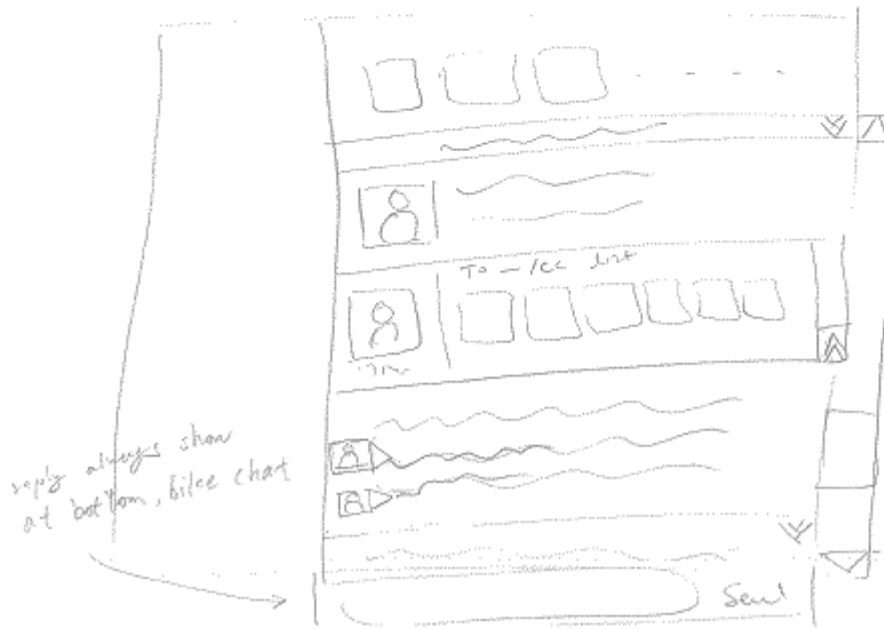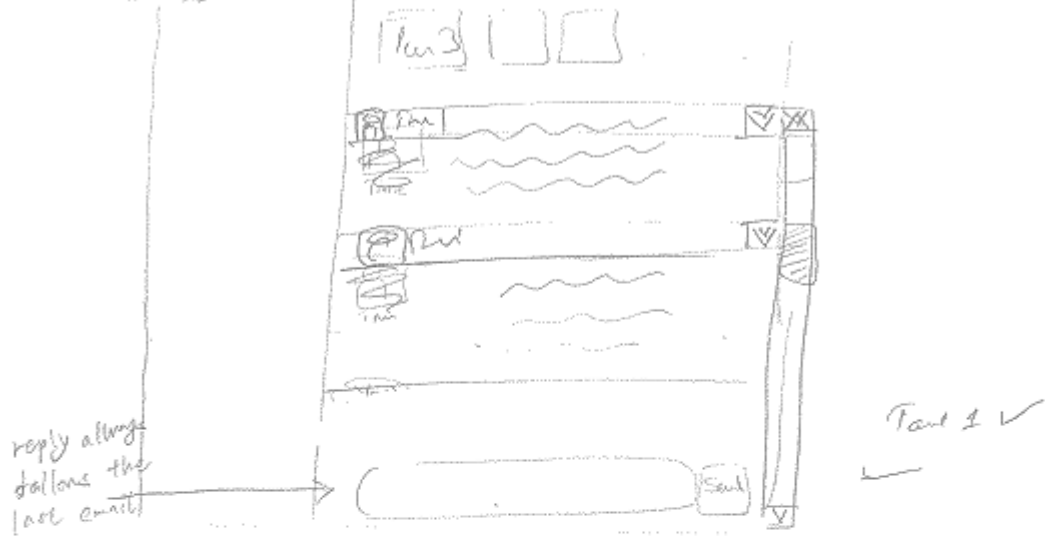
In line reply

Highlight response.

Project A   3pm
Project B   1pm
Project C   6pm
Email D   5pm
Yesterday
Email A   9am
Title B   3pm

Name..Name   email@email.com   6pm   Reply
To: me, others.

Reply: Send

,Name   email@email.com   5pm   Reply
To: me, others

Name   email@email.com   Reply
To: Me, othe.

Name   email@email.com   5pm   Reply
To me, others.

Person A   3pm

Person B   9pm

Person C   10pm

Cascade Reply

Full information always available in each email reply.

Figure 1 Sketch for reply box location + inline
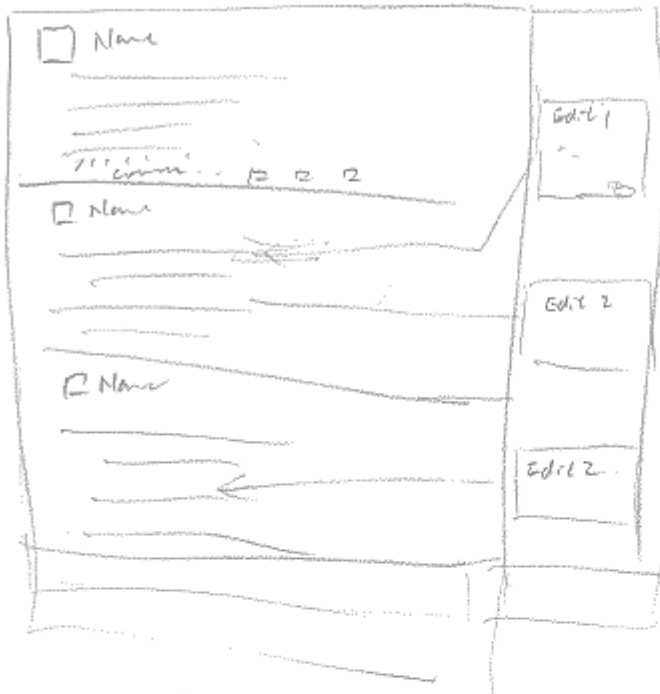

reply

Figure 2 Above: reply box at last email.
 Below: reply box always show in the
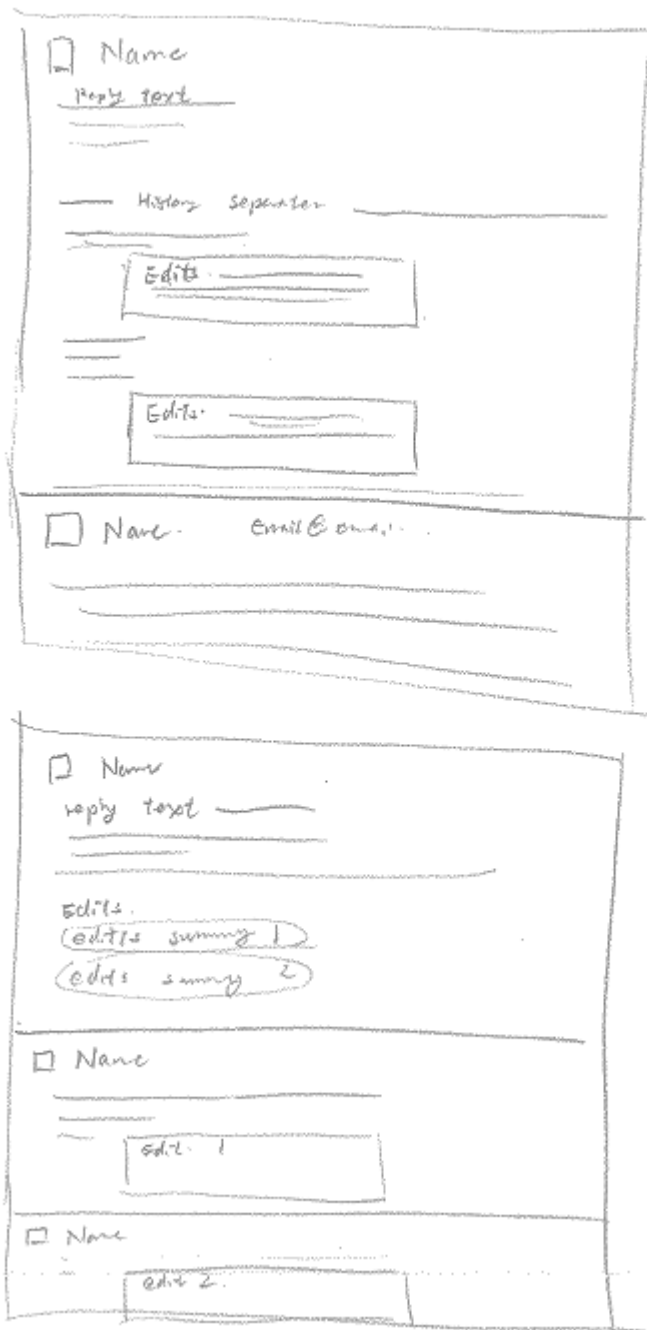
bottom.

Figure 3 Above: Inline reply shown along with full context, auto highlight and box inline text.
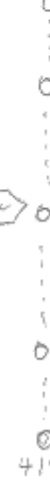 **Below: inline comment shown summary only. Full comment remains next to the original**

text.
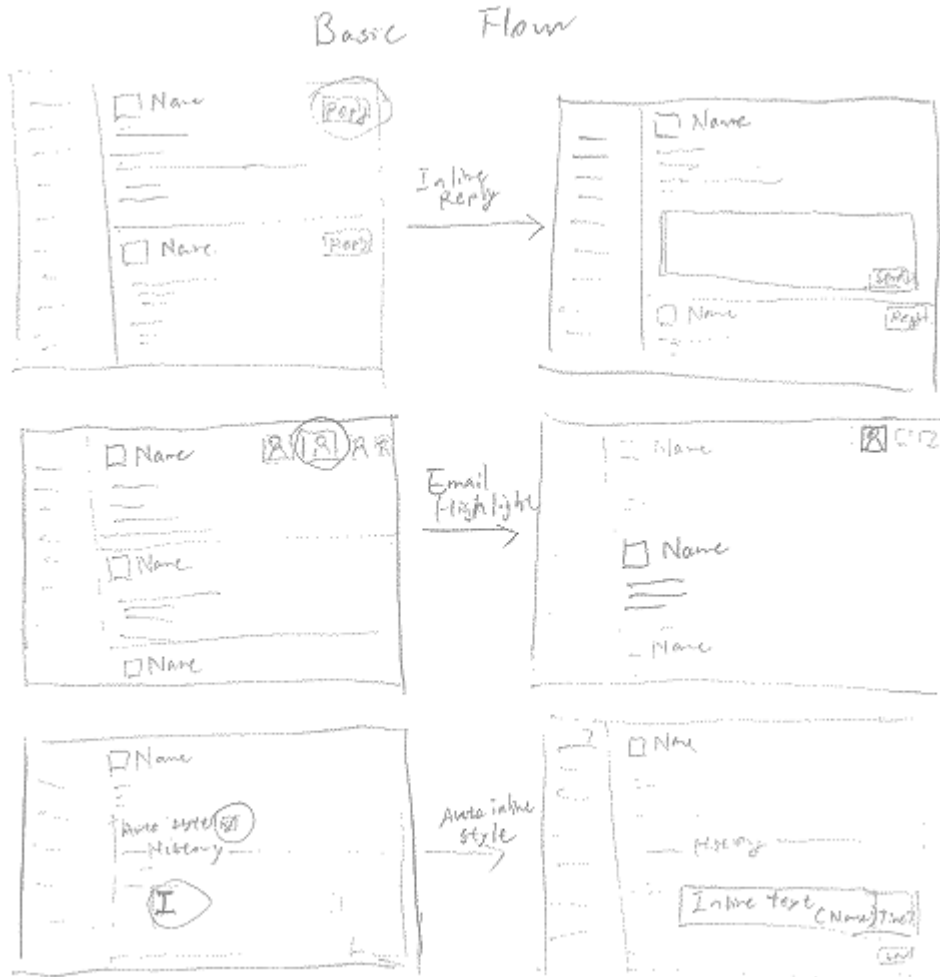
Figure 5 UI Changes for three different actions: reply, highlight, inline comment.

Selected Design

Reply Box

For the reply box, we choose to put it right below the email which user intent to reply. We choose this design because this implicitly provides more information to the user. It's location gives user a hint on which specific email user is replying, so user would be less confused on which instance of email he is replying. This also give user the option to start off multiple replies to different people.

One of the other design we had is to only add the reply box after the last email. The advantage of this is it would lead user to fork less, and try to maintain an sequential reply as much as possible. However this could leads to confusion that user thought he is replying to the last thread, but is

actually replying an older reply in the thread. We also thought about having the reply box and button always shown in the bottom of the email, like a chat client. However this idea was rejected later, because most people read more than write. So this would be an unnecessary UI element when user just need to read. In addition, having the reply box always available is more prone to accidental reply.

Inline Reply

Inline reply is one of the main issue our interviewer have facing. And it is one of the contributing factor to the cluttered, and fragmented email thread. The design sketches we came up are all toward easy to use, and clean in UI.

The final design we choose would auto create an in-line section when user starts to edit in the older part of text in the reply. We would also choose a different color, to help distinguish his edit from the original content. Once user replied with his in-line edits. The recipient of this reply would see the main body of the reply, follow by a list of summarized edits made by the sender. When user clicked on the summary, reader would be take to the original reply, where the original context and edit is located.

We choose this design because of easy of use, and cleanness of the UI. One of the other design we have is very close to the existing email style, which could contribute more to the email fragmentation issue. Yet another design we have is very close to the Word commenting system. User can never edit inside the original context, they can only add comments to it. Although this makes the email thread very clean, it reduces the flexibility and gives less control to the user.

Scroll Bar

We found that one of the pain point for working professional is difficult of finding a specific piece of information in the long reply. One way we help to solve this problem is by providing a more informational, and easy-to-use scroll bar.

The design we choose provides a visual summary of the email, in addition we think provide a picture of the sender could help reader overview the size, length, number of replies about a specific email. The other option we thought of is to use a colored dot to indicate reply, this would also gives an overview of all email. However we think picture provides more direct information to the user.

Scenarios

Scenario 1

Once the email client is open, the main screen (Figure 1) will appear before John. The Left column is showing a list view of all the latest email in John's Inbox. While going through this list, John will notice the email from Chris with subject "**Weekly Update from Chris**". He will click on the email. This will update the reading pane of the screen (the right column) with the email body. John will read through the message. He will then click the reply button on the top right section of the message. This will create a section for him to enter his reply. He will type his

response and click the Send button on the far right side of the reply section and he is done with his first task.

Scenario 2

Once the email client is open, the screen shown in Figure 1 will appear before John. The Left column is showing a list view of all the latest email in John's Inbox. While going through this list John will notice the conversation "**Open Issues in High Profile Project**". He will click on it and that will update the reading pane of the screen (the right column) with all the emails in this conversation. Since there are many replies to the message, and John right now is only interested in the comments of his Manager, he will click on his Manager's Photo in the top section of the reading pane. This will collapse all the other replies and leave the replies from his manager open and highlighted. This will help him just focus on the comments of his manager. Once done with reading those, he will click the reply button on the message from his manager (top right section of the message), which will create a section for him to enter his reply. He will type his response and click the Send button on the far right side of the reply section and he is done with his second tasks as well.

Scenario 3

Once the email client is open, the screen shown in Figure 1 will appear before John. The Left column is showing a list view of all the latest email in John's Inbox. While going through this list, top down, John will notice the conversation "**Next Generation Email Client**". He will click on it and that will update the reading pane of the screen (the right column) with all the emails in the conversation. Since there are many replies to the message already and John has just noticed this conversation, he wanted to read the first message in this conversation to understand what is going on. To achieve that, we will turn to the vertical scroll bar on the far right of the to the reading pane. He will select the bottom most node of the scroll since that represents the first message in this conversation. Selecting that node will automatically scroll all the replies up in the reading pane and John will be taken right to the first message. John will read through the message. Then he will continue up and go through the other responses. On getting to the response from Xiang Lie, John will notice the question for him. To make sure that his response is taken in the right context, John will respond to the question in-line by clicking the reply button on that particular email, and then will take his cursor to right below Xiang's question. John will notice that there would be marker with his name, automatically added to his cursor position. Plus, the style of his reply text would also be changed automatically, so that people can easily different his response from others . John will type his response and then click send button on the far right side of the reply section. He is now done with the final task as well.