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Silicon Valley (Season 4: Episode 1)

The dream of changing the world has been built into the human DNA. To have challenges, recognition influence, brings satisfaction to the human mind. Technology has been a cornerstone of inspiring people who have had their impact on the world. It took 75 years for 50 million users to use the telephone, and only three months for the iPhone to accomplish the same feat (Nemes, 2015). With the invention of planes, trains, and automobiles, people find themselves at a distance with their acquaintances, friends, and relatives. The mail or a telegram doesn't seem quick enough, and phone calls can't illustrate facial expressions or allow intimacy people in relationships are looking for. Video chat was first invented when the television was. NASA used it when communicating on the first manned space flights, but the technology has evolved. Now users can call others while on their commute home using a mobile signal. Video group chat is a vital tele-communication tool for the world to use to enhance humanity by conveying information to the world around us. Though video chat is incomprehensibly smart, there are still some improvements needed. One man and his crew set out to develop an innovative solution.

Richard Hendricks is a computer programmer who works at Hooli, a data-driven technology company that manufactures web servers. While at work he develops a revolutionary data compression algorithm that qualifies him to produce a music app of which he calls Pied Piper. After a Ted Talk, Richard pitches to venture capitalist Peter Gregory. Initially he is rejected. After acknowledging two different offers, a $4 million buyout from Hooli's CEO Gavin Belson and Peter Gregory's 5% stake for $200,000 investment, Richard is encouraged by his acquaintances to pursue the investment, and he does.

One of Richard's employees, Dinesh, develops a next generation video chat app using Richard's algorithm. When the app is released, hundreds of thousands of people download the app, which leads to Series B funding round. Each person that begins to use the video chat app costs the newly renamed company PiperChat money to host them on Amazon Web Services. While running low on cash, Richard Hendricks kidnaps a venture capitalist who works for Wood Opal while he was leaving the Four Seasons Hotel. After having many drinks, the VC tells the valet staff to retrieve his car in the morning and reserves an Uber instead. Richard, knowing he was leaving the hotel, pulls up as a fake Uber driver.

After some common ground questions with the VC, Richard receives a call from his employees who are using the PiperChat app. As an informal, indirect sales pitch the five of them—Richard and his four employees using

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the PiperChat app—begin to discuss the benefits of using the multiple user app. They provide that the platform allows multiple concurrent users with no loss in picture quality even on a conventional 3G network. It also has the ability to add as many users as desired. If a person interacts with four different people like the way Richard was, each person receives one-fourth of the screen using portrait mode. Since the app allows one to call as many users as desired, the screen inherently becomes smaller for each person.

Within the show the technology of the video chat is fully available. In fact, the characters in the show estimated that hundreds of thousands of users have downloaded it. The venture capitalist said he would come on board once the app reached one million users. As they lack funding, maintenance on the app becomes expensive and timely. If they don't receive funding, they could go bankrupt, lose users, and it would be all over. One company that was close to bankruptcy in 1998, now is the leading tech giant covering three different industries—entertainment, technology, and telecommunications.

FaceTime, an iOS only app, is making its way to provide free group video chat to its loyal Apple customers. Though it's not known, it is said that the likelihood of iOS 11 will have the ability to host multiple users. Sources familiar with Apple's plans claim the feature will support up to five participants, and that users will be able to initiate video calling from within iMessage group video chats (Bell, 2017). Apple plans to unveil iOS 11 in June at the World Wide Developer's Conference. Another source says Apple will not build its own video chat. After Apple released iMessage to developers as a platform in September 2016, three guys in Boston founded the iMessage app called Fam. Without opening a separate window or app, Fam allows people to video chat with up to nine users in an existing iMessage conversation (Marinova, 2016). As of December 19, 2016, Fam was downloaded more than one million times and featured as the number two spot under "Top Free Apps" (Marinova, 2016). One issue with the app is that it won't allow users to open other apps while Fam is in progress. If a user wants to open Facebook, Fam would end session. Though Fam is a popular choice among young people, it is not the most used in internet personal or business calls.

Oovoo was a popular free video group chat company that competed with Skype, who charged for group video chat. However, in the quest to become more robust and reliable, a new backend infrastructure has evolved to the point where Skype could support text message buffering, file storage when sharing, and other features in more user-friendly ways (Courtney, 2015). Skype announced in January 2016 it would provide free group video chat—up

to 10 people—to users accommodated with iOS and Android devices (Perez, 2016). Microsoft has stated that over 750 million people use the app continuously, making it one of the most used apps in the App Store and Google Play (Perez, 2016).

Not only is it one of the most used apps today, but it has been a pioneer since the idea was conceived in 2003. As a Voice Over Internet Protocol provider, Skype has given users access to call anyone in the world without having to pay for caller cards. Making long distance calls in the 1990s was costly, but with Skype's free service, not only can a user call a friend or a relative, he or she can come face-to-face with another person, a technology that didn't exist before.

In *Silicon Valley*, Richard provides a peer-to-peer video group chat service that streams high-quality video over 3G connections. A lot of users struggle to maintain a high-quality experience using a video chat over a 3G connection because of the amount data speed provided. This might be the only solution to PiperChat's service, because as time moves forward technology advances. 4G LTE is super-fast and PiperChat's solution over a 3G connection doesn't really matter anymore.

Much of the show dwindles on the interaction of Richard's employees and how they can manage—as an underdog—to be successful even in the midst of a tech-giant such as Hooli. Their collaboration, teamwork, and friendships pushes them to work hard on the project, devoting countless hours to coding and managing data so that their app can stay afloat. Towards the end of the episode Richard finds he is not passionate about the video group chat, and he gives up his position of CEO to Dinesh, but obtains copyrights to his revolutionary data compression algorithm. In a much more realistic way, people working on an app like this would need to be dedicated, not unlike the characters, but they would have to persevere even when the bank account is running low. Lots of companies have struggled to stay on top without going under. Apple was formed in a garage and Airbnb in an apartment. Both have been successful because of the hard work and dedication the founders endured.

One of the aspects in building an application through dedication and hard work is understanding the difficulties in creating something that would benefit and improves the lives of people. From the Techno ethics lecture on March 7, one of the first slides indicates that ethics is "a set of concepts and principles that guide us in determining what behavior helps or harms sentient creatures" – Tomas Paul and Linda Elder of the Foundation of Critical Thinking. In applying this to technology we can understand that building an application that is ethically feasible would be

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deemed appropriate. Skype has taken ethical steps to ensure the safety of communication on a Voice Over Internet Protocol. All Skype-to-Skype voice, video, file transfers and instant messages are encrypted, which is protected by malicious users and potential eavesdropping, and Skype uses 256 bit encrypted keys which are very difficult to crack (Skype, 2017). However, with terrorism a major problem in the world, many wonder that terrorist planning and communication could be done over Skype. This would obviously be an unethical approach in using a group video chat. The United States Government has insisted on making a move on this notion, by intervening into Microsoft's data storage. Microsoft handed the keys of Skype's encrypted messages to the National Security Administration nine months after it had purchased Skype. The NSA had boasted that a new capability had tripled the amount of Skype video calls being collected through Prism of which NSA has "direct access" to (Greenwald, 2013). One ethical dilemma that may drive users away is the fact that the NSA is watching over each person's calls. This move is an ethical approach, because for the sake of safety and security, people are able to communicate around the world and around the clock without having to worry about suspicious interactions from other users. Though Skype is secure, and one of the pioneers to engineer group video chat, some think that this technology could be improved upon.

Within the next five to ten years, Skype is likely to have lots of tune-ups to its vastly growing service. Since mobile users have now exceeded desktop users (Heisler, 2016), Skype should obviously look into achieving a higher quality video. Adding to this, a highly-underrated aspect Skype should add to their tool belt is having noise-canceling technology incorporated into their video calls, making it easier to hear the other person, eradicating the noise from traffic, trains, and other people talking. Another important idea Skype could look into doing is giving users the ability to port old phone numbers to their Skype account. So, when they call someone, the other person doesn't see a random phone number from New Zealand. Social network integration would increase traffic into the Skype platform, by allowing Facebook contacts to be imported into Skype. These are just some of the few ideas that Skype could pursue.

Of all the ideas that people conceive, we see communication in the world as something that progresses the human race. Whether its scientific knowledge, the score to the basketball game, or breaking headline news, people need to be in the know. Video group chat has changed the way people interact with each other. It's like having a face-to-face conversation with other people while being overseas. Yes, innovation in this industry is still likely to

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proceed, but now through various platforms group video chat is available and multiple users can talk with the tap of

a few buttons.

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