

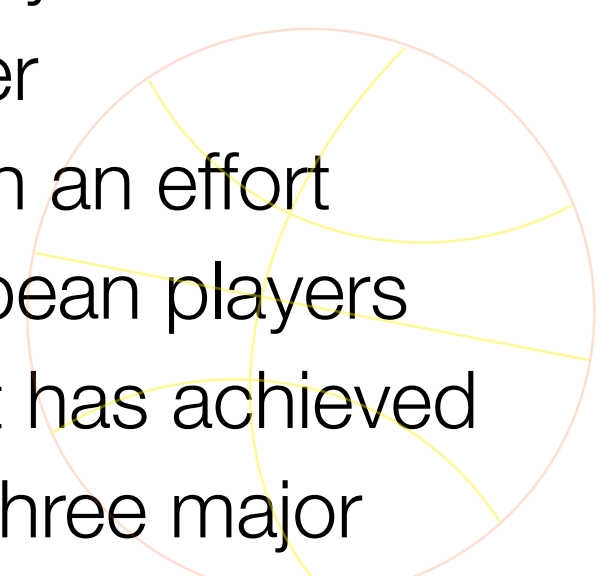


Learn Basketball App


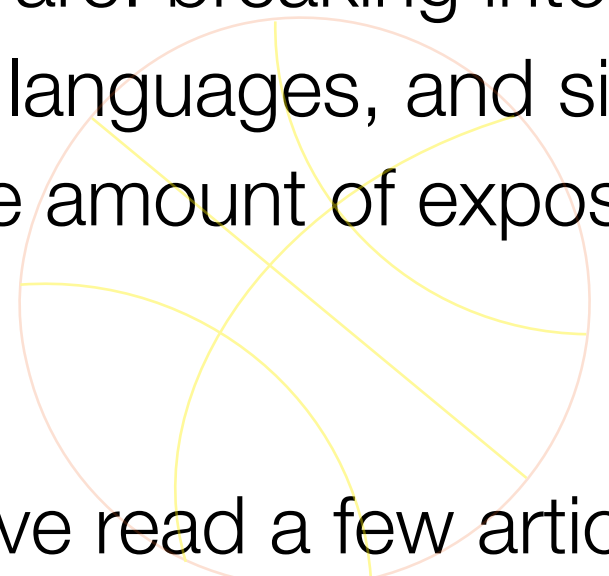
Technology's Role in the NBA



In the 2017-2018 season, the NBA has a total of 64 European players in the league - a record high for the organization. Given this, Adam Silver (NBA Commissioner) has stated that the organization will put forth an effort to appeal more to global audiences - specifically in Europe. European players have been in the league since 1946, but basketball is a sport that has achieved most of its popularity in the United States - its country of origin. Three major challenges in encouraging the NBA's popularity overseas are: breaking into a "soccer-loving culture", translating NBA content to many languages, and simply explaining the game to people who haven't had the same amount of exposure to basketball as Americans have.



The NBA's biggest resource in this quest is technology. I've read a few articles where the NBA is cited as being the most tech savvy of the major sports organizations and intends to use this as a way of continuing growth with its international fan-base. The NBA's philosophy in building a network of innovative tech experts is "listen to every idea".



The NBA's Digital Media Philosophy

The NBA's senior vice president of digital media, Melissa Brenner is namely responsible for establishing this highly respectable and effective method. The league hosts networking events for venture capitalists, tech companies, startups, teams, consultants, etc. and the digital media team keeps in touch with each person met at the event in order to stay abreast of digital trends. If one of those people/groups wants to present something to the NBA, they hear it no matter what. The philosophy is basically that you never know what you're gonna get until you hear the idea out.

Result of the NBA's Digital Media System

Possibly the most notable product of this system has been the adoption of a messenger bot which delivers highlights to a fan's phone just seconds after the live action. With this turnover speed, it's impossible that a human being had any part in the delivery process. The company who pitched this idea is WSC Sports Technologies. The bot is designed "to automatically determine the start and end time of every single play that happens in every single game, in close to real time" which is a unique characteristic in the world of "automatic highlight generation". Depending on what the app user is interested in seeing, rules can be set up to detect pretty much any type of highlight (ex. when six 3-pointers are scored by one player in a single game) and know the length of the corresponding video footage.

There's an App for That

This is a system that could be extremely helpful in the NBA's quest to appeal to an international audience. I envision an app which explains game rules in real time using the same system the NBA uses now to deliver highlights via team messenger bots. In addition to highlights, this app shows the game in real time and explains each play in a sidebar. Levels can be set based on the user's level of understanding (beginner, intermediate, expert). The beginner level would display basic game rules, intermediate would delve into different types of fouls and how to detect them, and expert displays more obscure aspects of the game.

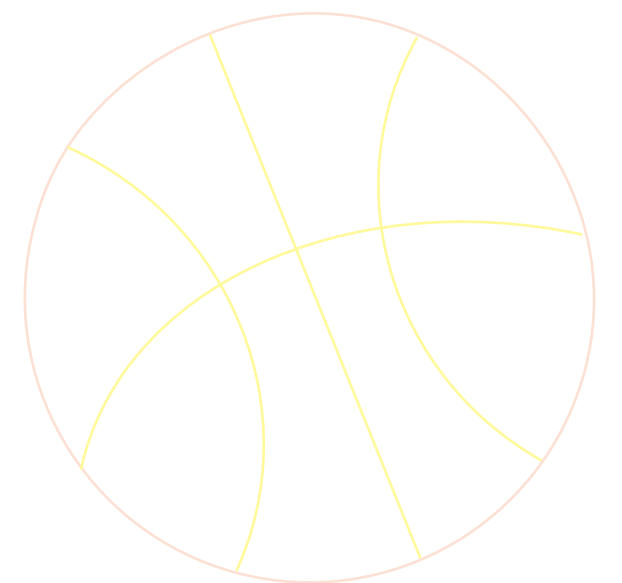
The idea would be to start out at a level and "graduate" to the next (if you start as a beginner, only change the setting to intermediate once you feel fully comfortable with everything learned at the beginning level, and so on), but explanations are detailed enough that a user can begin at whichever level they feel comfortable.

As for updates, the rules which correspond to the user's level are detected and delivered to their phone in near-real time. App users can also decide in settings if they want to receive only highlights, only rule-learning information, or both. My vision for this app is that it would be helpful, not only to established basketball fans, but also to people on the learning curve. Additionally, I would hope that this app could help the sport develop more international success.

The OSI Model

The Open Systems

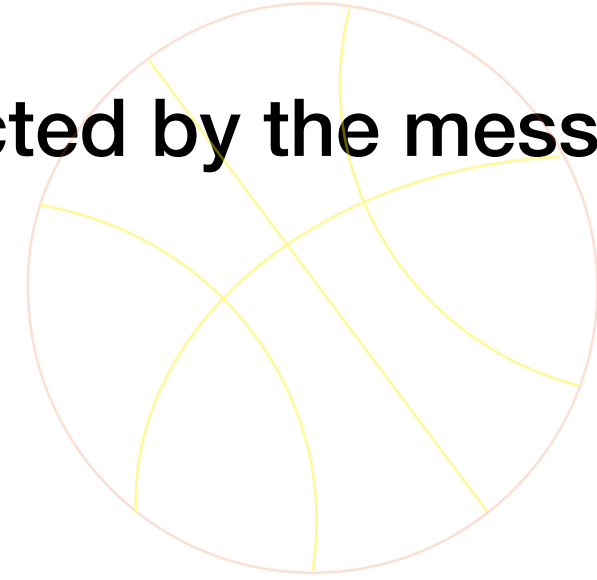
Interconnection (OSI) model is a visual representation of how applications communicate through a network. The OSI model is a 7-layer system. Each layer represents a different step in the transfer of data from one application to another.



Physical Layer

Transforms frames into bits; data is arranged/encoded before being sent to another computer's physical layer

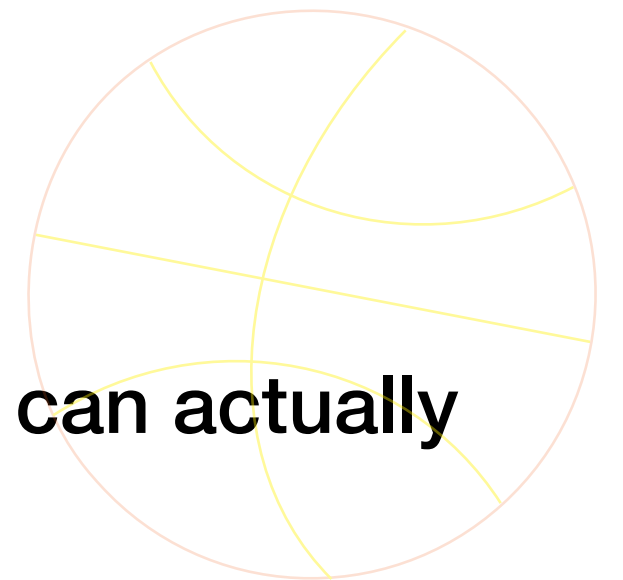
An important highlight or game rule has been detected by the messenger bot



Data Link Layer

Provides error free transmission of data frames

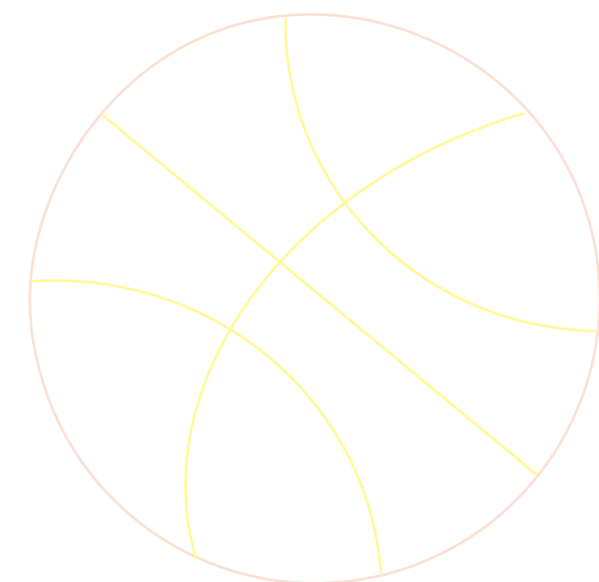
The detected information is translated into binary code which can actually be understood by the following layers



Network Layer

Data is placed into packets; determines shortest path for packets; adds IP address

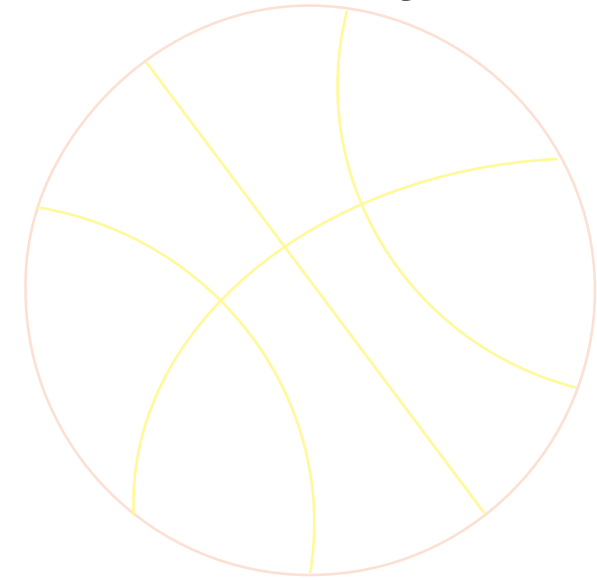
The user's phone IP address is determined as final destination; the most efficient route to that IP address is planned



Transport Layer

Ensures sure data is reliable and valid; firewalls take place here

Data is reviewed and deemed reliable enough to continue on its journey



Session Layer

Establishes a secure connection (session) and denies an insecure connection

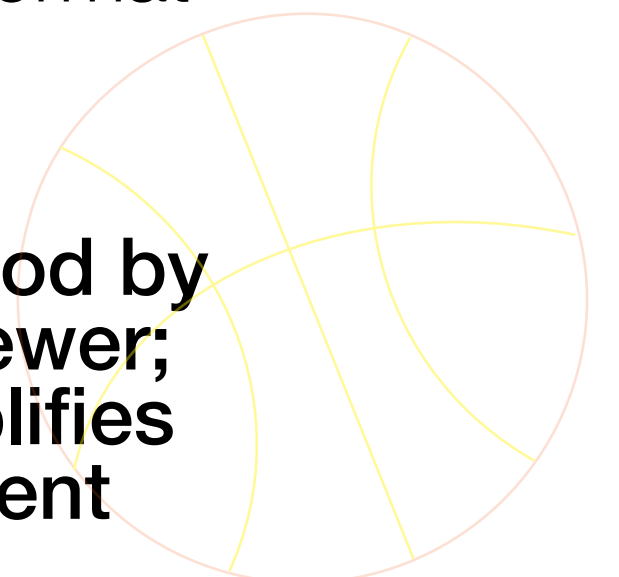
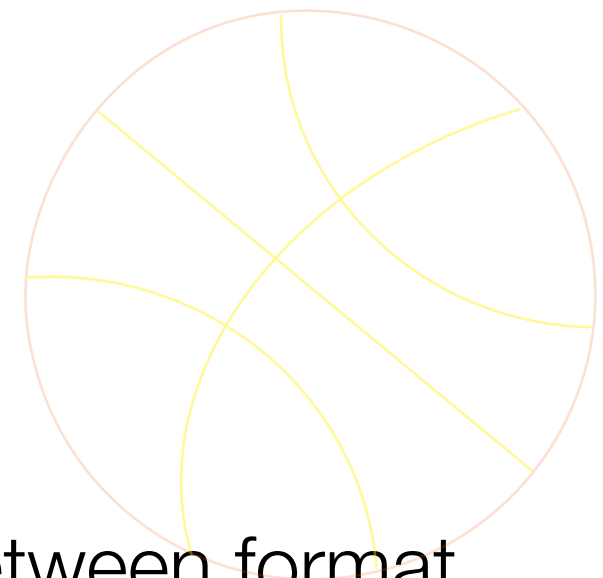
A secure connection is established between the messenger bot and the user's phone



Presentation Layer

Prepares info to be presented to session layer (translator between format used by app layer and session layer)

Translates the binary data into a format which can be understood by the application layer to accurately deliver information to the viewer; data encryption and compression also occurs here which simplifies data into fewer bits, making the translation process more efficient



Application Layer

Information is received and presented to the user

User receives notification via the app with highlights and rules of the game

