

# PWC G8 Gals@Technology

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## New Basics of iPhone and iPad

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## Scott Ksander

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- 40+ years in the IT field, 26 years at Purdue
- Wrote his first program (FORTRAN) when he was in 5<sup>th</sup> grade. Purdue degree in Computer Science.
- Areas of interest – systems development, networking, security
- In retirement, Scott writes a technology column for the Purdue Retirees Newsletter and does presentations for the Purdue Women’s Club
- Scott and Peggy enjoy life with their kids and grandkids – especially on trips to DisneyWorld
- Scott grew up in Chicago and Peggy grew up in Fish Lake, Indiana (city boy meets farm girl at Purdue story – and the adventure continues ...)



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## Current Topics

- Windows 11 – Good for new hardware. NO RUSH. More than 60% of existing Windows 10 systems do NOT have the necessary hardware to upgrade. Windows 10 support will continue for at least 5 years.



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## Current Topics – WiFi 6 and WiFi 6e

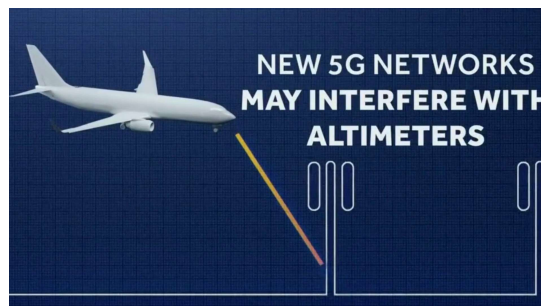
- WiFi 6 is a new standard to allow more efficient use of available radio “channels” (current 2.4GHz and 5GHz). Both router and devices would need to support WiFi 6. Unlikely you have a WiFi 6 other than a new phone. WiFi 6 routers have only been available for 2 years.
- WiFi 6e is a new “channel” to help with wireless congestion. This is the 6GHz band. No Rush. Expected router life is usually 4-5 years because of changing features.



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## Current Topics – Cellular 5G

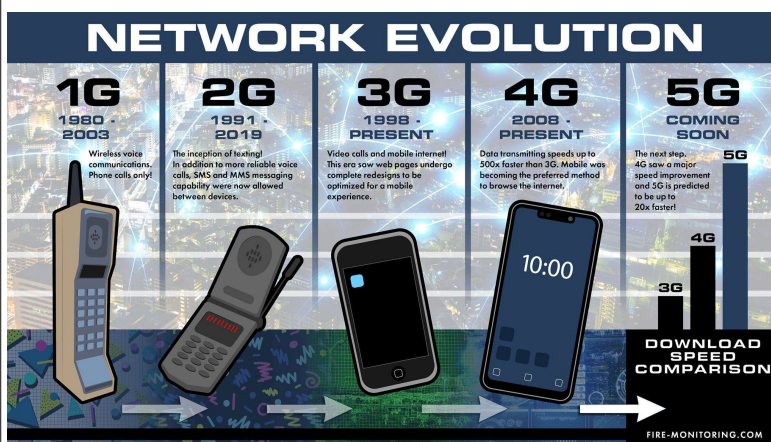
- 5G (stands for 5<sup>th</sup> Generation and not to be confused with 5GHz) – this means different things for different cell vendors.
- Verizon and ATT are using new “channels” and trying to differentiate themselves by calling it 5G UW (Ultra Wideband). Goal is more simultaneous calls and higher data rates.
- The “channel” (aka C-band) is also used by aircraft Radar Altimeters on final approach to airports. FAA has issued information and warnings. ATT and Verizon running at 50% around airports.



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## Current Topics – Cellular 3G Shutting Down

- 3G was introduced in 2002
- Cellular 3G shutting down to reuse those “channels” for higher bandwidth methods (5G)
- AT&T – February 22
- T-Mobile – 3Q22
- Verizon – by end or 2022
- Major impact to old alarm systems, medical devices, older in-car systems such as OnStar



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iPhone  
June 29, 2007

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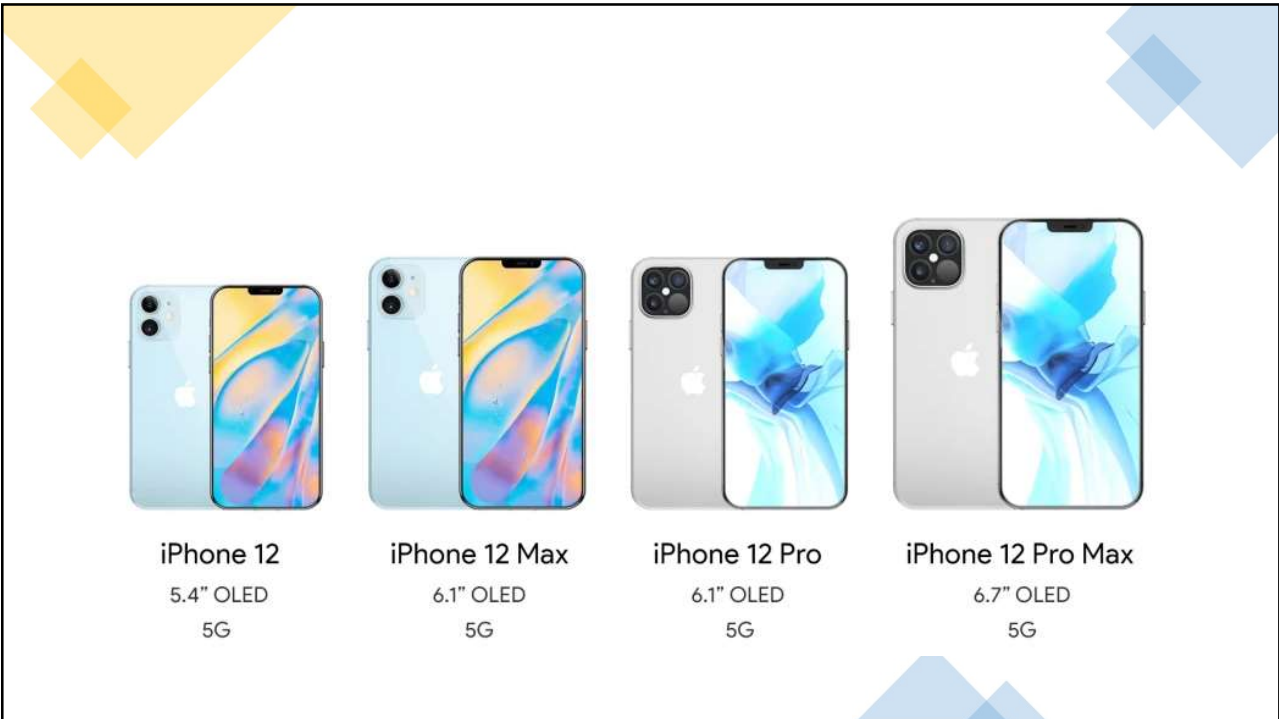
iPad  
April 3, 2010

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## What's Really Important

- Price




	128GB storage	256GB storage	512GB storage	1TB storage
iPhone 13 Mini	\$699	\$799	\$999	NA
iPhone 13	\$799	\$899	\$1,099	NA
iPhone 13 Pro	\$999	\$1,099	\$1,299	\$1,499
iPhone 13 Pro Max	\$1,099	\$1,199	\$1,399	\$1,599

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## What's Really Important

- Size



	iPhone 13 Mini	iPhone 13	iPhone 13 Pro	iPhone 13 Pro Max
Display size, resolution	5.4-inch OLED; 2,340x1,080 pixels	6.1-inch OLED; 2,532x1,170 pixels	6.1-inch OLED; 2,532x1,170 pixels	6.7-inch OLED; 2,778x1,284 pixels
Dimensions (Inches)	5.18 x 2.53 x 0.3 in	5.78 x 2.82 x 0.3 in	5.78 x 2.82 x 0.3 in	6.33 x 3.07 x 0.3 in
Dimensions (Millimeters)	132 x 64 x 7.65 mm	147 x 72 x 7.65 mm	147 x 72 x 7.65 mm	161 x 78 x 7.65 mm
Weight (Ounces, Grams)	4.97 oz; 141g	6.14 oz; 174g	7.19 oz; 204g	8.48 oz; 240g

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## What's Really Important

- Camera

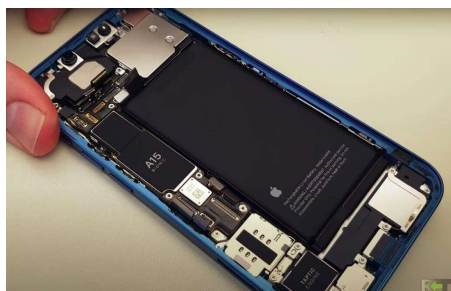


	iPhone 13 Mini	iPhone 13	iPhone 13 Pro	iPhone 13 Pro Max
Camera	12-megapixel (wide), 12-megapixel (ultrawide)	12-megapixel (wide), 12-megapixel (ultrawide)	12-megapixel (wide), 12-megapixel (ultrawide), 12-megapixel (telephoto)	12-megapixel (wide), 12-megapixel (ultrawide), 12-megapixel (telephoto)
Front-facing camera	12-megapixel	12-megapixel	12-megapixel	12-megapixel

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## What's Really Important

- Battery



	iPhone 13 Mini	iPhone 13	iPhone 13 Pro	iPhone 13 Pro Max
	Undisclosed; Apple lists 17 hours of video playback	Undisclosed; Apple lists 19 hours of video playback	Undisclosed; Apple lists 22 hours of video playback	Undisclosed; Apple lists 28 hours of video playback

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# What's Really Important

- Special Features






	iPhone 13 Mini	iPhone 13	iPhone 13 Pro	iPhone 13 Pro Max
Special features	5G enabled; MagSafe; water resistant (IP68); wireless charging; dual-SIM capabilities (nano-SIM and e-SIM)	5G enabled; MagSafe; water resistant (IP68); wireless charging; dual-SIM capabilities (nano-SIM and e-SIM)	ProMotion technology with adaptive refresh rates up to 120Hz; lidar scanner; 5G enabled; MagSafe; water resistant (IP68); wireless charging; dual-SIM capabilities (nano-SIM and e-SIM)	ProMotion technology with adaptive refresh rates up to 120Hz; lidar scanner; 5G enabled; MagSafe; water resistant (IP68); wireless charging; dual-SIM capabilities (nano-SIM and e-SIM)

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iPad Pro 12.9-in. (5th genera ▼

iPad (9th generation) ▼

iPad mini (6th generation) ▼

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## What's Really Important

- Price



	iPad 2021 10.2-inch (5th gen)	iPad Air 2020 10.9-inch (4th gen)	iPad Pro 2021 11-inch (3rd gen)	iPad Pro 2021 12.9-inch (9th gen)
Capacity and price: Wi-Fi models	\$329 (32GB) / \$479 (256GB)	\$599 (64GB) / \$749 (256GB)	\$799 (128GB) / \$899 (256GB) / \$1,099 (512GB) / \$1,499 (1TB) / \$1,899 (2TB)	\$1,099 (128GB) / \$1,199 (256GB) / \$1,399 (512GB) / \$1,799 (1TB) / \$2,199 (2TB)
Capacity and price: LTE models	\$459 (32GB) / \$609 (128GB)	\$729 (64GB) / \$879 (256GB)	\$999 (128GB) / \$1,099 (256GB) / \$1,299 (512GB) / \$1,699 (1TB) / \$2,099 (2TB)	\$1,299 (128GB) / \$1,399 (256GB) / \$1,599 (512GB) / \$1,999 (1TB) / \$2,399 (2TB)

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## What's Really Important



- Size

	iPad 2021 10.2-inch (5th gen)	iPad Air 2020 10.9-inch (4th gen)	iPad Pro 2021 11-inch (3rd gen)	iPad Pro 2021 12.9-inch (9th gen)
Display resolution	2,160x1,620-pixel resolution	2,360x1,640-pixel resolution	2,388x1,668-pixel resolution	2,732x2,048-pixel resolution
Pixel density (pixels per inch)	264 ppi (Retina)	264 ppi (Liquid Retina True Tone)	264 ppi (Liquid Retina True Tone with ProMotion)	264 ppi (Liquid Retina XDR True Tone with ProMotion)
Dimensions	9.8x6.8x0.29 inches	9.7x7x0.24 inches	9.7x7x0.23 inches	11x8.5x0.25 inches
Weight	1.07 lbs. (Wi-Fi); 1.09 lbs. (LTE)	1 lbs. (Wi-Fi); 1.01 lbs. (LTE)	1.03 lbs. (Wi-Fi); 1.04 lbs. (LTE)	1.5 lbs. (Wi-Fi); 1.51 lbs. (LTE)

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## What's Really Important

- Camera



	<b>iPad 2021 10.2-inch (5th gen)</b>	<b>iPad Air 2020 10.9-inch (4th gen)</b>	<b>iPad Pro 2021 11-inch (3rd gen)</b>	<b>iPad Pro 2021 12.9-inch (9th gen)</b>
Rear camera	8-megapixel f2.4	12-megapixel f1.8	12-megapixel f1.8 wide, 10-megapixel f2.4 ultrawide	12-megapixel f1.8 wide, 10-megapixel f2.4 ultrawide
Video recording	1080p at 30fps	4K at 24, 30 or 60fps; 1080p slo-mo at 120 or 240fps	4K at 24, 30 or 60fps (wide); 60fps (ultrawide)	4K at 24, 30 or 60fps (wide); 60fps (ultrawide)
FaceTime front-facing camera	12-megapixel photos; 1080p video	7-megapixel photos; 1080p video	12-megapixel TrueDepth; 1080p video	12-megapixel TrueDepth; 1080p video

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## What's Really Important

- Battery



	<b>iPad 2021 10.2-inch (5th gen)</b>	<b>iPad Air 2020 10.9-inch (4th gen)</b>	<b>iPad Pro 2021 11-inch (3rd gen)</b>	<b>iPad Pro 2021 12.9-inch (9th gen)</b>
	Up to 10 hours use over Wi-Fi; up to 9 hours over cellular	Up to 10 hours use over Wi-Fi; up to 9 hours over cellular	Up to 10 hours use over Wi-Fi; up to 9 hours over cellular	Up to 10 hours use over Wi-Fi; up to 9 hours over cellular

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## What's Really Important

### • Features



	iPad 2021 10.2-inch (5th gen)	iPad Air 2020 10.9-inch (4th gen)	iPad Pro 2021 11-inch (3rd gen)	iPad Pro 2021 12.9-inch (9th gen)
Apple Pencil-compatibility	Yes; first generation	Yes; second generation	Yes; second generation	Yes; second generation
Unlock with	Touch ID	Touch ID	Face ID	Face ID
Wi-Fi, Bluetooth	802.11ac, Bluetooth 4.2	802.11ax, Bluetooth 5.0	802.11ax, Bluetooth 5.0	802.11ax, Bluetooth 5.0
SIM card support for cellular model	Nano-SIM; eSIM	Nano-SIM; eSIM	Nano-SIM; eSIM; 5G support (sub-6 GHz and mmWave)	Nano-SIM; eSIM; 5G support (sub-6 GHz and mmWave)
iPad Keyboard compatibility	Smart Keyboard	Magic Keyboard, Smart Keyboard Folio	Magic Keyboard, Smart Keyboard Folio	Magic Keyboard, Smart Keyboard Folio
Audio	Two-speaker	Two-speaker	Four-speaker	Four-speaker

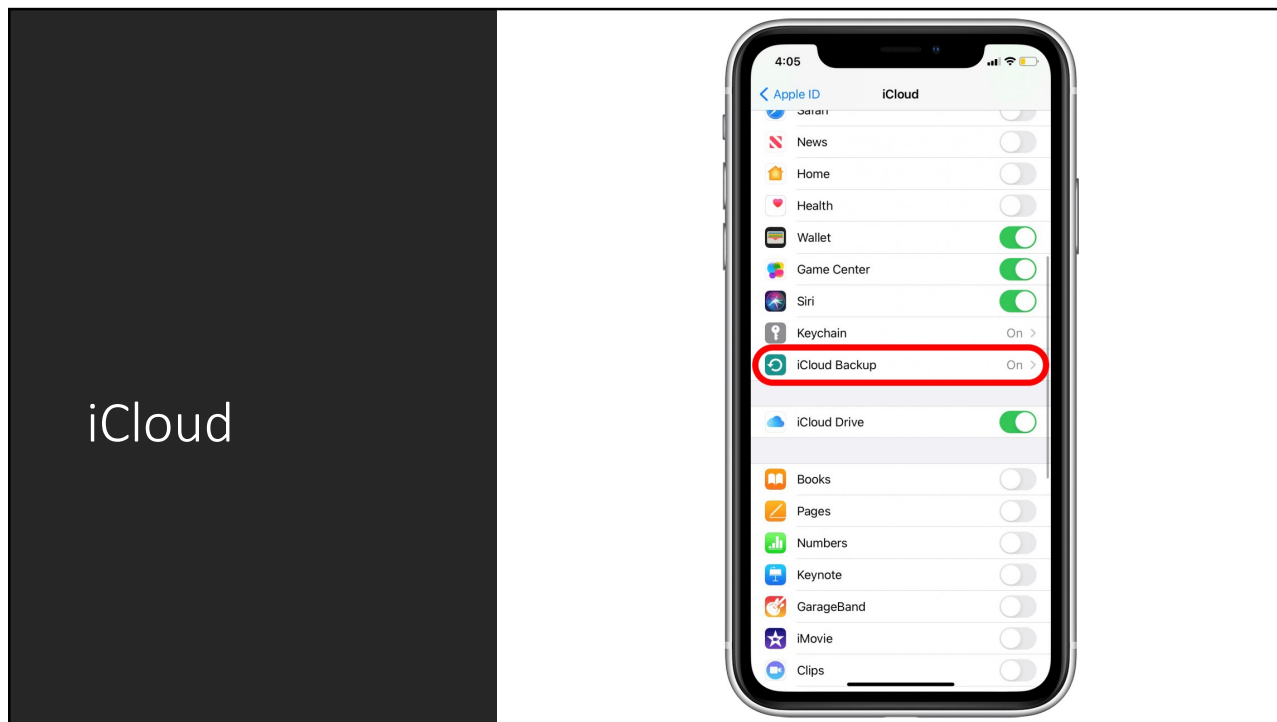
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## iCloud

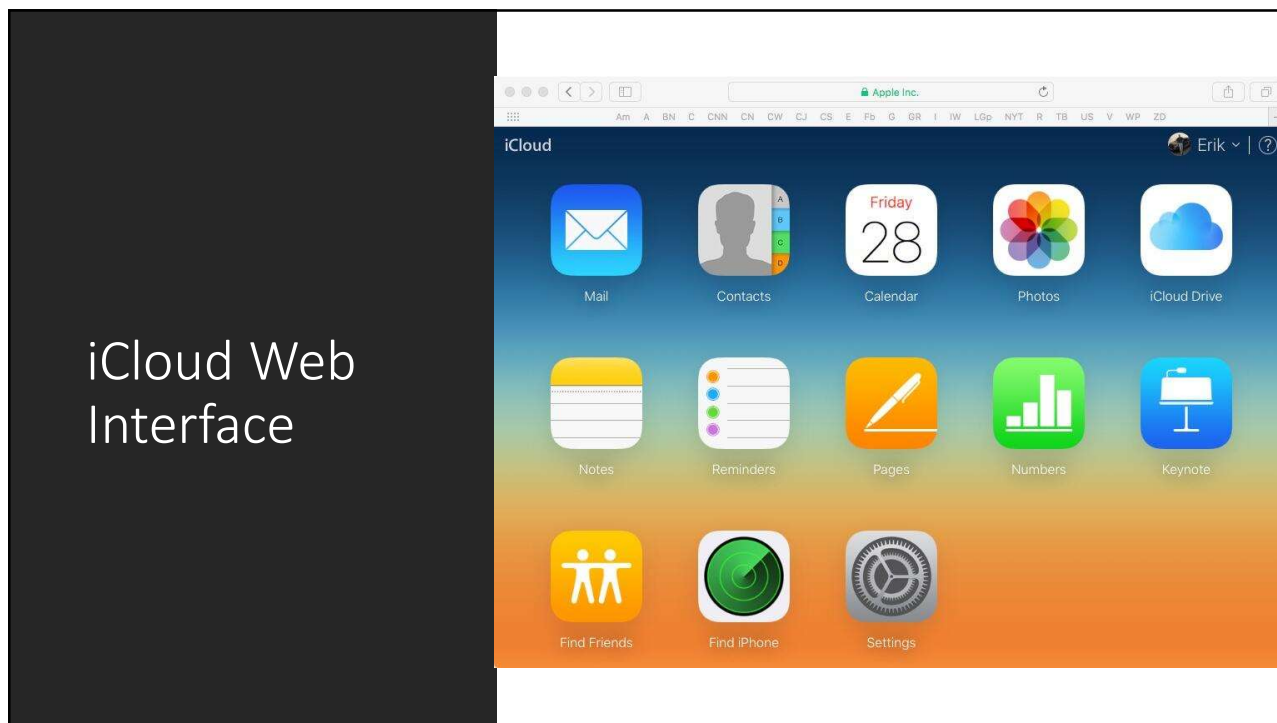


- First offered October 12, 2011 (replacing MobileMe)
- Backup for iPhone and iPad
- File sharing (photos!!)
- Collaboration
- Locate lost devices
- Calendar and Contact synchronization
- 5GB free with each account, \$0.99/month for additional 50GB, \$2.99/month for additional 200 GB

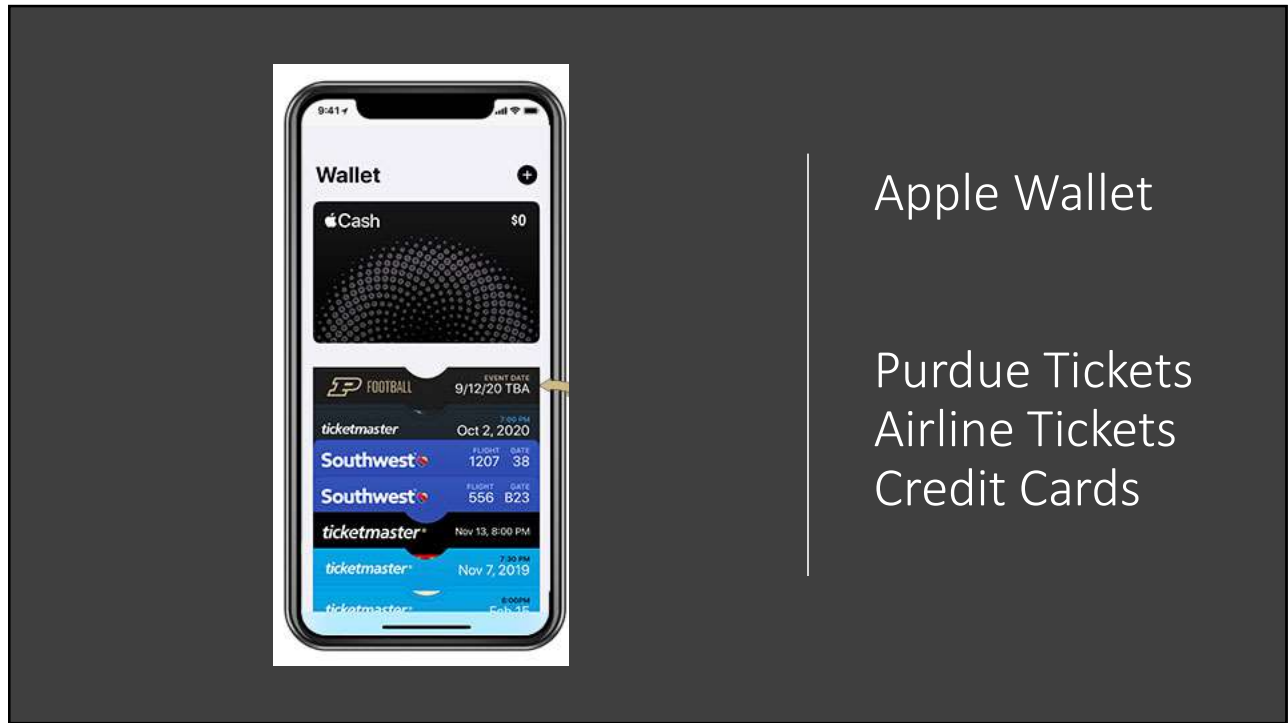
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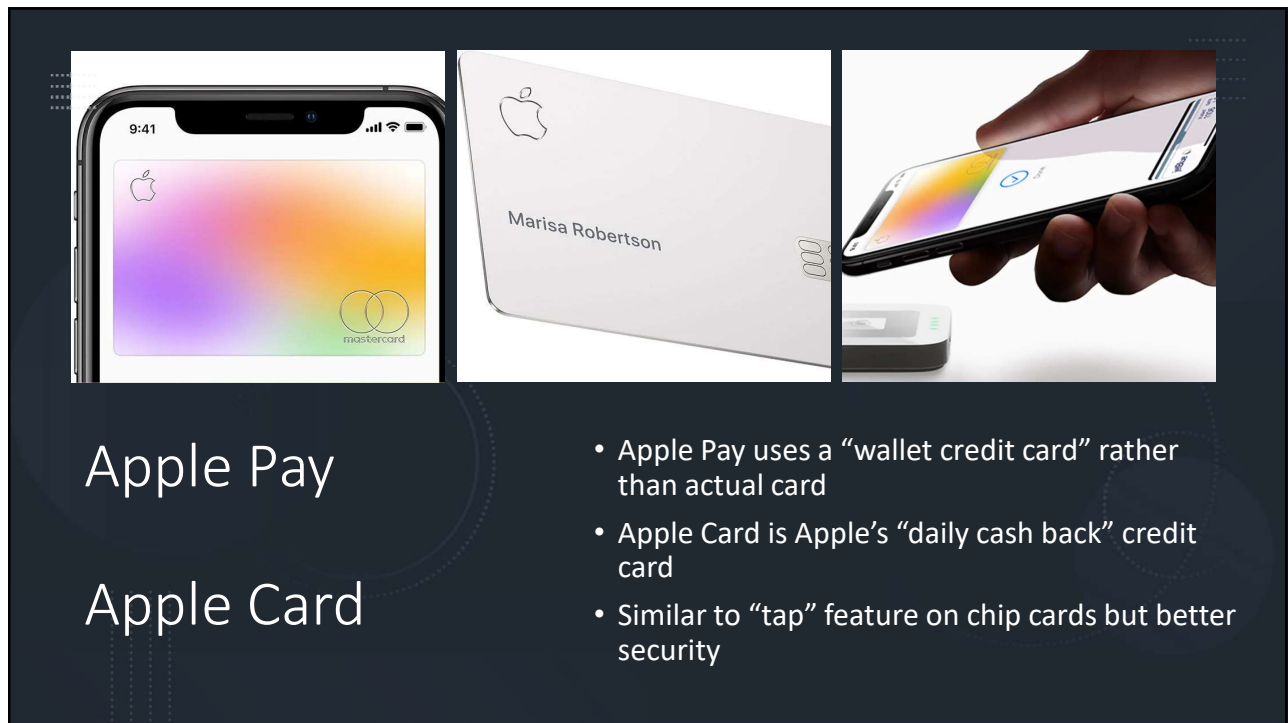
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Apple Wallet

Purdue Tickets  
Airline Tickets  
Credit Cards

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Apple Pay

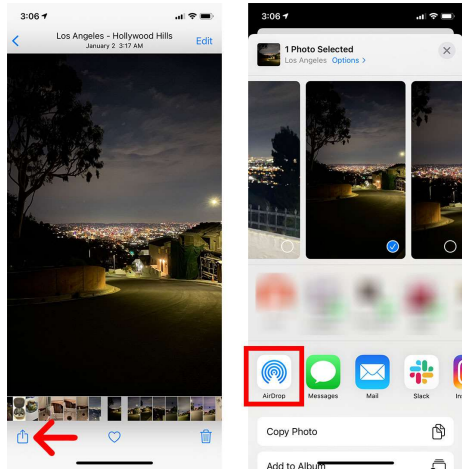
Apple Card

- Apple Pay uses a “wallet credit card” rather than actual card
- Apple Card is Apple’s “daily cash back” credit card
- Similar to “tap” feature on chip cards but better security

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## AirDrop – Nearby File Transfer



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## Apple Watch – Series 3



	Apple Watch Series 3
Price	\$199, £199, AU\$299
Watch size	38mm,42mm
Colors	Silver, space grey
Interchangeable bands	Yes
GPS	Built-in
Water resistance	Yes, up to 50m
Electrocardiogram	No
Blood Oxygen	No
Emergency features	Emergency SOS (911 and emergency contacts)
Apple Pay	Yes
Compatibility	iOS/iPhone only
Connectivity	Wi-Fi only
Storage	8GB

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## Apple Watch – Series 7 and SE



	Apple Watch Series 7	Apple Watch SE
Starting price	\$399 (£369, AU\$599)	\$279 (£249, AU\$429)
Size	41mm/45mm	40mm/44mm
Display	Always-on with nearly 20% more screen area than the SE	Always-on and more than 30% larger than Series 3
Display resolution	352x430 (41mm), 396x484 (45mm)	324x394 (40mm); 368x448 (44mm)
Durability	Water resistance; IP6X dust resistance	Water resistance
Sensors	Blood oxygen, electrical heart, optical heart, compass, always-on altimeter, accelerometer, gyroscope, GPS/GNSS, ambient light	Optical heart, compass, always-on altimeter, accelerometer, gyroscope, GPS/GNSS, ambient light
Safety features	Fall detection, noise monitoring, emergency SOS, international emergency calling	Fall detection, noise monitoring, emergency SOS, international emergency calling
Battery Life	Up to 18 hours, charges to 100% in 75 minutes	Up to 18 hours, charges to 100% in 2.5 hours
Connectivity	Wi-Fi, Bluetooth 5.0, W3 wireless chip, U1 chip, optional LTE	Wi-Fi, Bluetooth 5.0, W3 wireless chip, optional LTE

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## Apple Watch



	Apple Watch Series 7	Apple Watch Series 6
Starting price	\$399	\$399
Size and display	41mm/45mm, always-on screen that's about 20% larger; 70% brighter indoors in always-on mode	40mm/44mm, always-on screen
Durability	IP6X dust resistance, water resistant up to 50 meters	Water resistant up to 50 meters
Battery life (estimated)	Up to 18 hours with 33% faster charging	Up to 18 hours
Colors	Midnight, starlight, green, blue, red (aluminum); silver, graphite and gold (stainless steel); space black titanium and titanium (Apple Watch Edition)	Silver, space gray, gold, blue red (aluminum); silver, graphite and gold (stainless steel); space black titanium and titanium (Apple Watch Edition)

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