(Approx. 1284 words)

Meeting Idea -- The Computer Users of Erie (CUE) had this presentation at their March meeting; John Fair was the presenter. “About Web Browsers! If you access the internet, you use a web browser. Which one are you using? Chrome, Firefox, Explorer, Safari, Edge? Did you know you can have more than one on your device? Besides viewing a page on the internet, what else should you want your browser to do and how do you make sure that happens? We'll look at the popular web browsers, but there are other browsers out there. What are their strengths and why would you want to use them? We will explore security, cookies, cross-site tracking, hiding your identity, and more.”

More About Browsers

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If you open a website you are using a browser. Your computer or mobile device came with a browser installed, but is it the "right" one or the only one you should use? Why would you consider installing one of the other browsers? Since the CUE program "About Browsers" in March I have continued reading more articles describing the latest browser news and I wanted to share some of my research and opinions.

Browsers are more complex and powerful than most folks appreciate. Their components include front end and back end user interfaces, networking, data storage and engines for rendering and executing Java Script. A web server that you contact by typing a web address into the front-end user interface or clicking on a link responds by sending your computer a string of information that your browser must turn into a web page. The rendering engine of the browser reads the content which contains HTML and CSS code to create the image you see on your screen. The Java Script interpreter allows you to change what you see on the screen.

Browser function also includes encryption and description. If the site provides secure communication by public-key encryption (the "s" in https), the browser checks for a valid certificate issued by a trusted source. Once validated, the browser creates a password, encrypts it and sends it back to the server to be decrypted with the server's private key and then the secure communication begins using the shared secret password. All in the virtual blink of an eye! Look for the https with any website that asks for personal information.

Probably because of the complexity of modern browsers and the difficulty for each to be compatible across all web sites, the number of different browser engines in use has dwindled over time. Apple uses WebKit in the Safari browser for computers and will allow only WebKit to be used for any browser installed on mobile devices. Chromium Blink, a fork of WebKit, is the foundation of the Google Chrome browser as well as Microsoft Edge, Opera, Vivaldi, Epic, Brave, and a number of minor players. Firefox and Tor use the Quantum engine. These browser engines are all open source but the bells and whistles that distinguish each browser may not be. Although Internet Explorer (and its proprietary engine Trident) at one time dominated with a 95% market share, IE is being discontinued by Microsoft and with obvious implications for support and insecurity. No one should be using a version older that the current IE 11 and even that version has had recent security problems. Microsoft is replacing IE and the original Edge with a Chromium based version of Edge, soon to be released.

Full disclosure, I am an Apple device user and as such have become accustomed to using Safari. I realize that Safari is not the best browser and it is not compatible with all features of some websites. For example, I have been frustrated when filling out a form on a website only to find the "submit" button does not work. If I open Chrome or Firefox on my Mac, I have no such problem with the same website. So if you are an Apple person, the easy answer to the question of how many browsers you should have is more than one. (I have four browsers installed on my Mac: Safari, Chrome, Firefox and Brave.) In fact, my answer to all users whether Apple, Windows, Android or Unix is the same: have more than one browser.

Which of the available browsers to install is a deeper question. Chrome has about a 2/3 market share of all browsers worldwide and it has a huge library of extensions to add functions and features to the basic browser. Google, however, has a history of harvesting and monetizing your information which makes some users limit their use of Chrome. Firefox, a product of the not-for-profit Mozilla Foundation, is designed for security and privacy as outlined in the Mozilla Manifesto (suggested reading). I have both on all my devices, and I currently favor Firefox Quantum.

In addition to the focus on privacy and security, here are some features I like about Firefox for a computer. The newer code in the Quantum engine is designed to make use of multicore processors rather than the single core used by Chrome. As processors gain more cores, the browser will work faster. Chrome also uses more RAM and slows as more tabs are opened. While the speed of both browsers is initially similar in most tests, Firefox is designed to gain speed as CPU technology improves. Also, as a traditionalist, I like the ability to add a separate search bar since I was never a fan of combining url and search functions in the same bar. I like taking screenshots and that function is built into Firefox, but then again, it is built into the Mac OS. Reader View and Pocket are built in, not ad-ons. Like Chrome and Safari, Firefox can be synchronized across devices so that bookmarks I add on my Mac as well as search history automatically appear on my iPad and iPhone. By the way, if you are weary of the ad-supported search results that appear at the top of a Google results list, you may want to look into DuckDuckGo as your search engine as I have in Firefox. Try them both and you will be surprised at the difference in quality of results. You also won't see the mysterious ads for products you researched as happens with Google.

You should carefully choose from the many extensions or ad-ons for either of these browsers and here are ones that remove distractions and enhance privacy and security. uBlock Origin is favored over Ad Blocker to limit advertisements. You may choose to "white list" some sites that object to the use of ad blockers of any type. My opinion: if they didn't have such obnoxious ads, perhaps I wouldn't be motivated to use the ad blocker in the first place! HTTPS Everywhere is a great extension to force secure connections when available. Browsers may have a similar sounding function built in but are less assertive. Privacy Badger is the recommended tool to prevent third party tracking. Privacy Essentials by DuckDuckGo also prevents tracking but has the additional feature of giving the site a privacy grade as well as blocking trackers. I have all four installed on both Chrome and Firefox and they do not interfere with each other. Users have reported no interference in any of the forums I have visited.

There are a handful of other add-ons or extensions that I believe enhance everyday functionality. I installed the Last Pass extension in all browsers so I can use that password manager. I recommend using a purpose-built and maintained password manager rather than a similar function that comes built into a browser. Just Read provides the same functionality to Chrome as Reader View which is built into Safari and Firefox. It provides a clean text without clutter and ads and is great for printing an article. Wikiwand reformats Wikipedia pages for a more modern, easier to read look in either Chrome or Firefox.

Finally, make sure your browser is set to automatically update itself. These updates are necessary for security. Both Chrome and Firefox may receive updates every several days to block vulnerabilities and keep current the information needed for proper functionality. If the browser you are using has only monthly updates (IE was known for this), it is an inviting target for exploit by hackers.