

Using Chrome Devices in a Public Environment

GPLS Tech Bootcamp 2017

Unicoi State Park Lodge
Helen, Georgia

Presented by:

Charles D. Ellis, PhD.
Libdata.com

April 26, 2017

What is ChromeOS?

- ▶ Cloud based computer operating system.
 - ▶ Runs a Chrome browser as the interface to the web.
 - ▶ Runs Google/Android APPS
- ▶ Not just a Chrome browser
 - ▶ A login screen
 - ▶ A desktop
 - ▶ Taskbar and APP menu
 - ▶ Window management (multiple windows)
 - ▶ System tray – clock, battery indicator, Wi-Fi, current user icon, volume
 - ▶ Files APP for viewing images, open documents, watch videos, extract zip files.....
 - ▶ Offline APPS – Kindle reader, camera, calculator, google docs, gmail reader, Google calendar, play videos.
 - ▶ Minimal file storage
 - ▶ External USB, HDMI, Ethernet (Chromeboxes and Bases).

What ChromeOS cannot do

- ▶ Printing – uses Google cloud printers – you cannot connect a printer directly or use a network printer.
- ▶ Offline programs are limited
- ▶ Limited local storage (will accept thumb drives)
- ▶ Cannot attach printers, CD burners, or watch video DVDs (Netflix works)
- ▶ Cannot install and play PC games
- ▶ Cannot run Windows programs, like Photoshop, Microsoft Office, or other powerful desktop applications.

Advantages of ChromeOS Devices

- ▶ Fast bootup and shutdown
 - ▶ No background programs running or opening
 - ▶ No manufacturer installed "Bloatware"
- ▶ No more updating
 - ▶ ChromeOS is updated in the background and is always up to date.
 - ▶ No other programs to update – all the APPS are updated by the owner of the APP - not the user. (No more MSOffice updates!)
- ▶ No Virus protection or disk protection needed.
- ▶ Long battery life – uses much less power.
- ▶ Inexpensive – Chromebits (\$85), Chromebooks (\$200 - \$500), Chromebases (\$250 - \$500), Chromebox (\$100 - \$300).

Problems with Windows Computers

- ▶ Viruses – especially ransomware
 - ▶ Requires extensive virus protection – has to be continuously updated and tends to slow down the computer.
 - ▶ Manufacturer “bloatware” – seems there are always items running in the background and added when you install or update software (i.e. JAVA updates).
 - ▶ Ransomware can go through the network and attack other computers. (Look at what happened to St. Louis recently)
- ▶ Updating Windows and other programs
 - ▶ Have to leave the computer on overnight to download Windows updates at least once a week.
 - ▶ Have to spend time updating other programs manually – especially print drivers , MSOffice, Deep Freeze, etc.
 - ▶ Have to maintain a server or individually setup group policies to protect the local system and control the user's experience.
- ▶ Disk protection
 - ▶ A disk protection program such as Faronics Deep Freeze is required to remove the previous user's information and to make sure viruses and other adware is removed periodically.
- ▶ Cost
 - ▶ Even though PC costs are coming down – you still have to buy virus and disk protection software and the added cost of IT support to do all of the required maintenance.

How Does ChromeOS Fix These Issues?

▶ Public Session

- ▶ Automatically removes all of the previous user's information – No need for Disk Protection software.
- ▶ No need for the staff to log into the computer – automatically goes to the desktop (or time management login screen).

▶ No updating

- ▶ ChromeOS is updated in the background and is always up to date.
- ▶ No other programs to update – all the APPS are updated by the owner of the APP - not the user.

▶ No Virus protection needed.

▶ Printing

- ▶ No print drivers needed – prints directly to a cloud ready printer or a printer that is connected to a PC or server running cloud print software.

▶ Desktop, look and feel, and available APPs are defined from a cloud admin console – no need for servers or individually setting up policies.

Installing Chrome Devices in a Public Environment

- ▶ First Step – Decide which Chrome device to purchase
 - ▶ ChromeBase – All in one ~ \$250 & up for a 22" monitor
 - ▶ Chromebox – Mini desktop – requires a HDMI monitor, keyboard and mouse. Is wireless, but has an ethernet connection. ~ \$149 and up
 - ▶ Chromebook – Laptop – only wireless for the most part – many different sizes and prices, Start at ~ \$200 & up for a decent size screen.
 - ▶ Chromebit – small computer (about the size of a snickers bar) – requires a small USB hub for keyboard and mouse or wireless keyboard and mouse (Bluetooth). Attaches to the HDMI port on a monitor. ~ \$90.



Installing Chrome Devices in a Public Environment

- ▶ **Second Step – Purchase Google admin console license for each ChromeDevice**
 - ▶ Buy from Google resellers – Neverware.com, www.genesis-technologies.com, many others
 - ▶ License cost is ~ \$30 for educational license (good for as long as you own the device)
 - ▶ Will have to have a domain and an email for an admin user.
 - ▶ Wait about a week for the licenses to become active
 - ▶ Test and make sure you can reach the admin console at admin.google.com – you will need to login with your admin login and password.
- ▶ **Third Step - Setup your organizational unit and add your chrome devices.**
 - ▶ The chrome devices will need to be enrolled first – usually they will be “wiped” and enrolled in your domain using the login and password in your license letter.
 - ▶ Once they are enrolled you can move them to a sub organization (i.e. Montgomery/Main/Adults)
- ▶ **Forth Step – Setup the computers within the Admin Console**
 - ▶ For public use – you will want to go into the admin console and change to the public session.
 - ▶ You will now have to learn how to use the Admin Console to manage the computers.
 - ▶ You will need to add APPs and Printers in the Admin Console.

Google Chrome Management Console

The screenshot shows the Google Admin console interface. At the top, there is a blue header with the Google Admin logo and a search bar. Below the header, the breadcrumb navigation reads "Device management > Chrome". The main content area is a list of settings categories:

- User settings**: Manage user-based settings on Chrome browsers and Chrome devices
- Android application settings**: Manage access to Android applications for users and Chrome devices
- Public session settings**: Manage public session settings on Chrome devices
- Device settings**: Manage Chrome device settings
- Devices**: View and manage Chrome devices
- App Management**: Find and Manage Chrome apps

Chrome Management Settings

The screenshot shows the Google Admin console interface, specifically the "Device Settings" section. The breadcrumb navigation reads "Device management > Chrome > Device Settings". The main content area is divided into two columns:


- ORGANIZATIONS**: A list of organizations including "libdata.com", "Artesia", "Public Computers", and "Steffen". "Public Computers" is highlighted.
- Kiosk Settings**: A section for "Locally applied" settings. It includes:
 - Public Session Kiosk**: A dropdown menu set to "Allow Public Session Kiosk".
 - Auto-Launch Public Session**: A dropdown menu set to "Yes".
 - Number of seconds before delaying auto-login; 0 means immediate**: A text input field with the value "0".
 - Auto-Launch Kiosk App**: A dropdown menu set to "None".
 - Enable device health monitoring**: A dropdown menu set to "Disable device health monitoring".
 - Enable device system log upload**: A dropdown menu set to "Disable device system log upload".
 - Screen Rotation (Clockwise)**: A dropdown menu set to "No policy set (default = allow the device to keep)".

Setting up Public Session in Device Settings Section

Google Chrome Management Console

Force-installed Apps and Extensions

The selected apps and extensions will be automatically installed.












Chrome Web Store >	Total to force install: 1
Domain Apps >	 LibShield Chrome ... Details Remove
Specify a Custom App >	
Business Apps >	
Business Extensions >	

[Save](#) [Cancel](#)

Adding Apps

Google Cloud Print: Shared Printers

The selected cloud ready printers will be available for anyone using the devices in this organization unit [?](#)

<p>Cloud Printers</p> <input type="text" value="Filter by printer name"/>	Shared printers: 2 (limit 100)
 newtest Add	 testBW Remove
 testBW Added	Other printers: ?
 test2 Add	 testcolor Remove
 CP1525nw Add	
 CP1525nwa Add	
 Ellis BW_printer Add	
 Ellis Color_printer Add	
 Google Cloud Prin... Add	
 PublicColor Add	

[Save](#) [Cancel](#)

Adding Printers

But, My Patrons Need MSOffice Products

- ▶ >95% of patrons just need a browser, but for the other few %, they may need MSWord, Excel, or Power Point.
 - ▶ Option one – Keep a couple of Windows computers available, i.e. don't go all Chrome.
 - ▶ Option two – Use Microsoft OneDrive – free Word, Excel, and Powerpoint.
 - ▶ Option three – migrate the patron to Google docs (free)
- ▶ Many of my patrons are older and set in their ways – they don't want to learn another operating system.
 - ▶ ChromeOS uses a chrome browser as the interface, very familiar interface. The libraries that have been using ChromeOS for the past couple of years say the patron's really like the Chrome devices – mainly because they are simple to use and very fast.
- ▶ My IT people say they are used to and trained/certified in Microsoft Windows and don't want to learn to maintain a new system.
 - ▶ Support is greatly simplified and works through a cloud server, giving them easy access from anywhere.
 - ▶ They no longer have to worry about viruses and disk protection.
 - ▶ Chrome has completely taken over the education system and has recently overtaken MAC for number of computers sold. It is the future of computing (cloud computing).

Time / Print / Reservation Management

- ▶ Time / Print / Reservation management is available and has been in operation, at many libraries, for the past two years.
 - ▶ Works along side Windows and MacOS computers
 - ▶ Works with the ChromeOS public session and Google Admin Console.
 - ▶ Sets up and utilizes Google cloud printers for print management and wireless printing.
 - ▶ Cloud based central management of multiple libraries.
 - ▶ Web based print release station manager
 - ▶ Web based central management – can have multiple management stations as well as portable (tablet) stations.

LibData

125 Years DOWNERS GROVE PUBLIC LIBRARY

Hours
Monday 8-5
Tuesday – Friday 10-6
Saturday – 11-8
Sunday - Closed

Announcements
John Grisham here on Monday

60:F8:1D:C0:BD:DC
Enter User ID to get started

User ID 1234

LOGIN

Public Chrome Computer Login Screen

Reservation Desk

Reserve next available computer
 Reserve certain date

INSTRUCTIONS
Please choose to either reserve the next available computer, or to choose a time and date to reserve a computer for.

Date 2016-04-28

Time 02:30

21:48 73°
Clear

< BACK RESERVE ✓

Pending List

Name	Computer Assigned	Time to Login
Steffen Sullivan	Computer 1	12:45

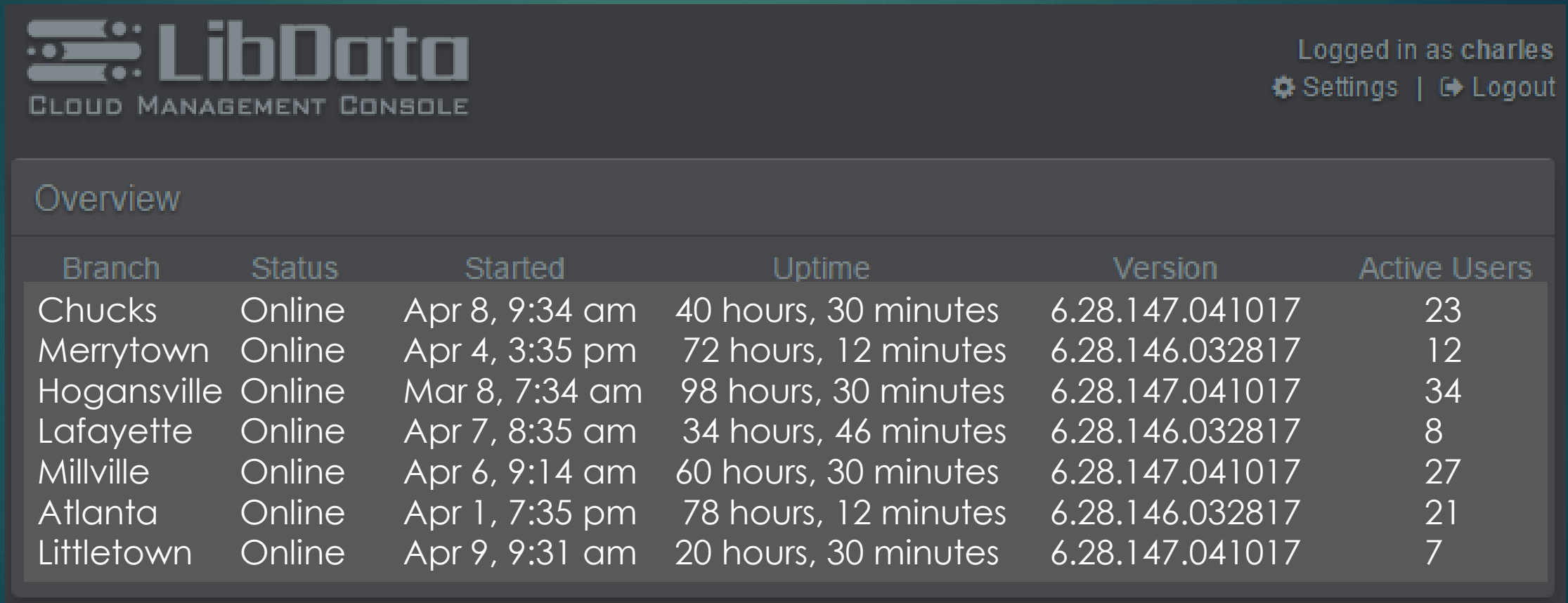
Waiting List

Name	Sign In Time	Minutes Waiting	Computer Selected	Estimated Wait Time	Zone Name
Steffen Sullivan	1:00	10	Computer 5	30	Student

Reservation / Waiting List Manager

Time / Print / Reservation Management

- ▶ Cloud Based Branch Management
 - ▶ Allows you to monitor your branches



The screenshot displays the LibData Cloud Management Console interface. At the top left is the LibData logo and the text 'CLOUD MANAGEMENT CONSOLE'. At the top right, it shows 'Logged in as charles' with links for 'Settings' and 'Logout'. Below the header is an 'Overview' section containing a table with the following data:

Branch	Status	Started	Uptime	Version	Active Users
Chucks	Online	Apr 8, 9:34 am	40 hours, 30 minutes	6.28.147.041017	23
Merrytown	Online	Apr 4, 3:35 pm	72 hours, 12 minutes	6.28.146.032817	12
Hogansville	Online	Mar 8, 7:34 am	98 hours, 30 minutes	6.28.147.041017	34
Lafayette	Online	Apr 7, 8:35 am	34 hours, 46 minutes	6.28.146.032817	8
Millville	Online	Apr 6, 9:14 am	60 hours, 30 minutes	6.28.147.041017	27
Atlanta	Online	Apr 1, 7:35 pm	78 hours, 12 minutes	6.28.146.032817	21
Littletown	Online	Apr 9, 9:31 am	20 hours, 30 minutes	6.28.147.041017	7

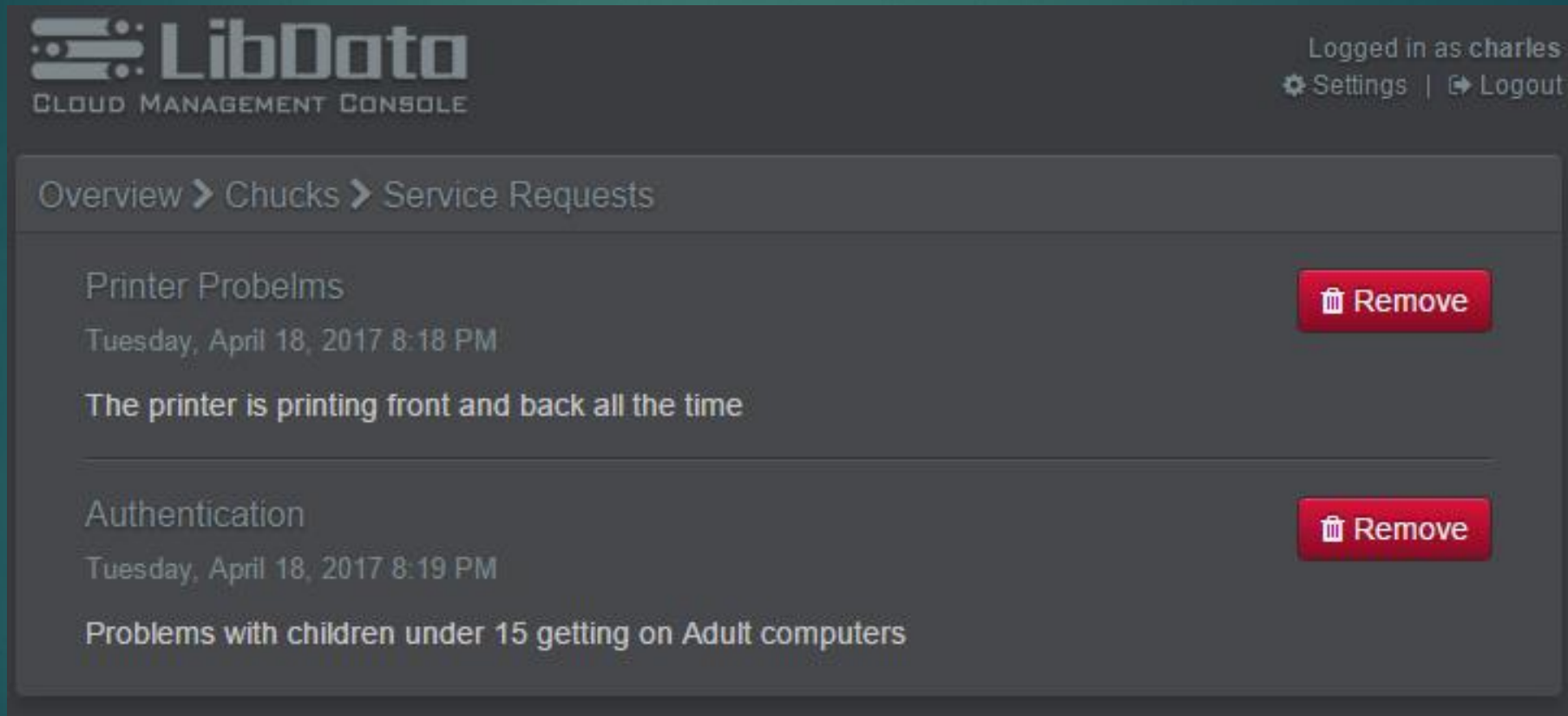
Time / Print / Reservation Management

- ▶ Cloud Based Branch Management
 - ▶ Allows you to monitor your branches

The screenshot displays the LibData Cloud Management Console interface. At the top left is the LibData logo and 'CLOUD MANAGEMENT CONSOLE'. At the top right, it shows 'Logged in as charles' with links for 'Settings' and 'Logout'. Below the header is a breadcrumb trail 'Overview > Chucks'. The main area is titled 'Control Panel' and contains six interactive tiles: 'View Screen' (monitor icon), 'View Logs' (book icon), 'Configuration' (gears icon), 'Service Requests' (wrench icon with a '2' notification badge), 'Updates' (refresh icon), and 'Statistics' (line graph icon). The bottom section is titled 'Branch Information' and is divided into three columns: 'General' (Name: Chucks, Status: Online), 'Uptime' (Started on April 18, 9:58 am, Running for 10 hours, 33 minutes), and 'Computers & Users' (1 Computers, 0% active, 0 Users). A 'Software' section at the bottom right shows 'Control Center' version '0.6.28148.041717'.

Time / Print / Reservation Management

- ▶ Cloud Based Branch Management
 - ▶ Allows you to monitor your branches



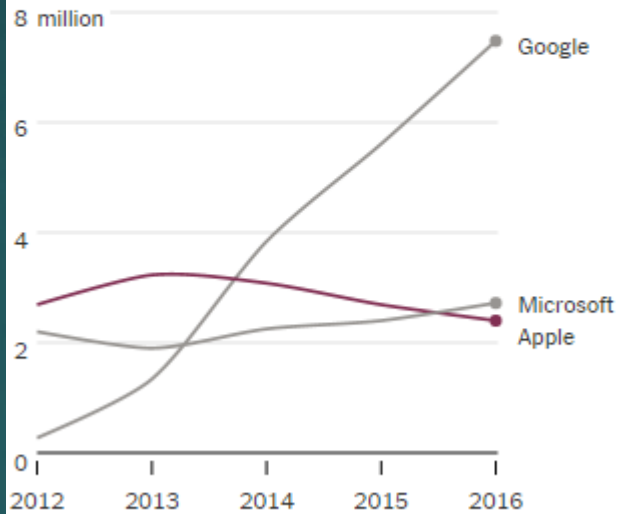
The screenshot displays the LibData Cloud Management Console interface. At the top left is the LibData logo and the text "CLOUD MANAGEMENT CONSOLE". At the top right, it shows the user is logged in as "charles" with links for "Settings" and "Logout". A breadcrumb trail indicates the current view: "Overview > Chucks > Service Requests". The main content area lists two service requests:

- Printer Probelms** (Note the typo in the original image)
Tuesday, April 18, 2017 8:18 PM
The printer is printing front and back all the time
Remove
- Authentication**
Tuesday, April 18, 2017 8:19 PM
Problems with children under 15 getting on Adult computers
Remove

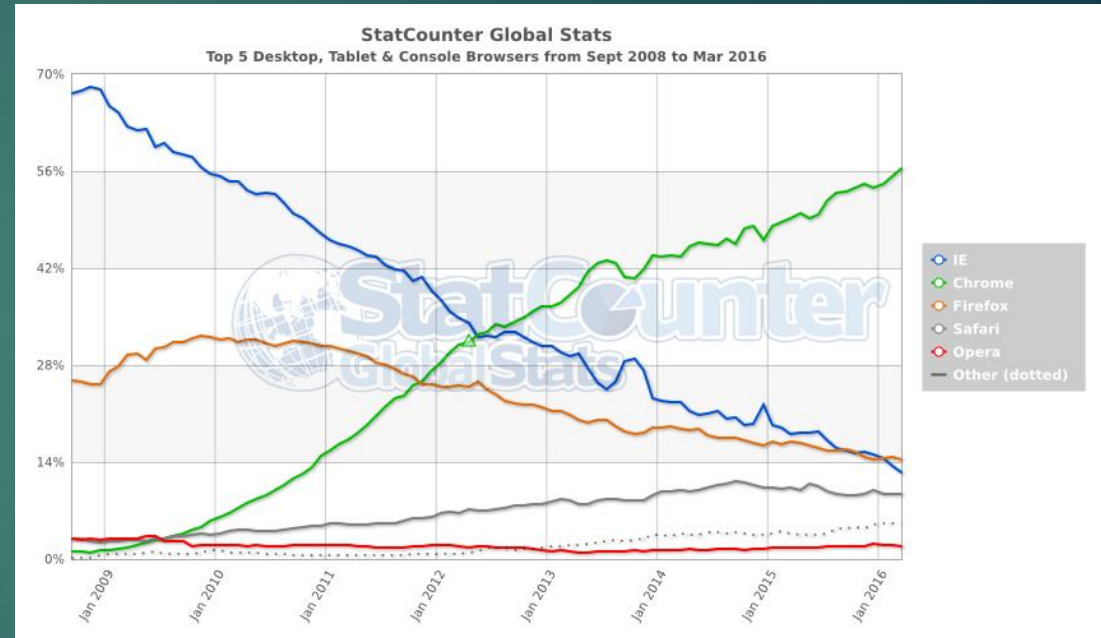
Are Chrome Devices Gaining Acceptance??

Devices Shipped to Schools

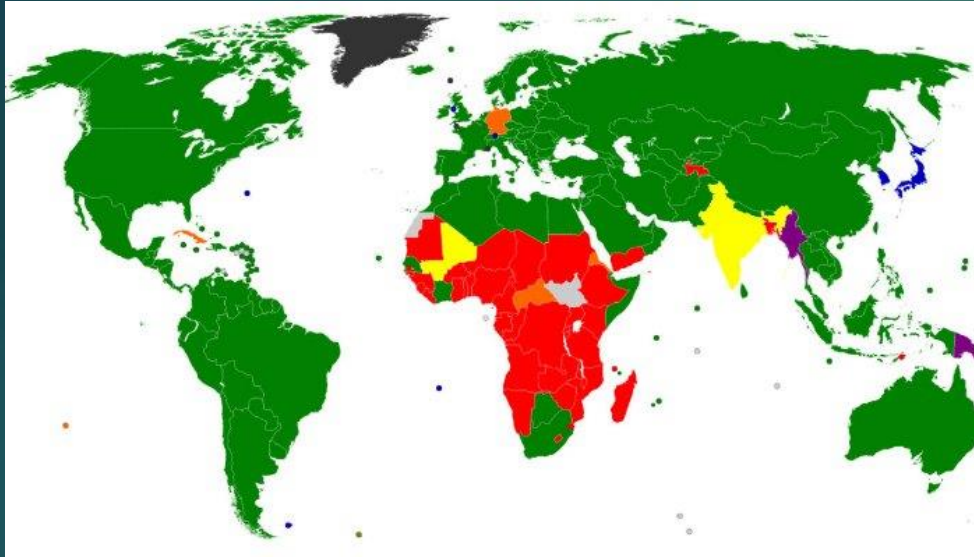
The number of laptops, tablets and other mobile devices shipped to schools in the United States, by company-specific operating system.



Source: Futuresource Consulting



Are Chrome Devices Gaining Acceptance??



Browser Used around the world (Green = Chrome)

Over the next several years one report is estimating that we will see over 17 million Chromebooks out in the wild by 2023 (via [Global Market Insights](#)). The same source estimated that we would see 5.3 million Chromebooks sold by 2014, so a jump to 17 million nearly 10 years later is likely a fairly conservative estimate. Looking at the market during 2016 we've already seen Chromebook sales [overtake Apple's Macbooks](#) for the first time, shipping over 2 million units while Apple shipped a little over 1.7 million.

Where are Chrome Devices being used in Libraries?

- ▶ Chrome Devices in Public Libraries
 - ▶ Libraries have purchased a few Chrome devices and loan them out for a short period.
 - ▶ Some added them to their public area without time/print management
 - ▶ Some have completely replaced their Windows computers with Chrome Devices (i.e. Rome, GA – Milledgeville, GA) and have time/print management.
 - ▶ Most who have Time/Print management also have a few windows machines.
- ▶ Libraries who are presently using Chrome with Time/Print management.
 - ▶ 40 -50 Libraries in Ga
 - ▶ South Carolina
 - ▶ Missouri
 - ▶ Arkansas
 - ▶ Texas
 - ▶ Kentucky
 - ▶ Wyoming
 - ▶ West Virginia
 - ▶ Brampton, Ontario Canada (10 branches)
 - ▶ Chatham, Ontario Canada (5 branches)
 - ▶ Christ Church, New Zealand
 - ▶ Queensland, Australia
- ▶ Expressed interest
 - ▶ Denver, CO
 - ▶ New York City
 - ▶ Sun City Retirement Communities
 - ▶ Surry County, UK
 - ▶ Albany, NY
 - ▶ Mississippi

Summary

- ▶ Significantly reduces cost and IT support requirements.
- ▶ Patrons like the experience – fast and easy to use.
- ▶ Cloud managed
- ▶ ChromeOS computers have been used successfully, in public libraries, for 2 years.
- ▶ Time/print management available and mature.
- ▶ Gaining wide acceptance.

