

Printing Interfaces

and how they affect Open Printing

Printing Interfaces

- A lack of key, standardized printing interfaces stands in the way of wide-spread printing support
 - Print System (Mobile)
 - Print Dialog
 - Print Graphics
 - PDF manipulation

Printing Interfaces

Platform/ Element	OS X	iOS	Linux (Desktop)	Linux (Mobile)	Linux (Android)
Discovery	Bonjour	Bonjour	Avahi	Avahi?	jmdns (third-party)
Print Dialog	Cocoa	Cocoa Touch	GNOME/KDE/others	None	None
Other UI	Cocoa	Cocoa Touch	GNOME/KDE/others	Qt/others	Java-based
Print System	CUPS	AirPrint	CUPS	None	None
Graphics	Quartz	Quartz	X11/Cairo/others	Qt/Cairo/ others	Java-based
Print Graphics	Quartz	Quartz	Cairo/others	Qt/Cairo/ others	None
PDF Manipulation	PDFKit/ Quartz	PDFKit/ Quartz	bits and pieces	bits and pieces	None

Print System (Mobile)

- Still need a print system on mobile devices
- Much different focus than on desktop
 - Simple spooling and hand-off of jobs to printers/services
 - Status monitoring
 - Job control
- Needs to be separate from applications
- printerd a good example

Print Dialog

- Multiple print dialogs on desktop Linux
 - None of them using the D-Bus interface
 - D-Bus based common print dialog forever in design, may no longer meet the needs of current technology
- No “standard” print dialogs on mobile Linux
 - Everyone rolls their own
 - Lack of print system one likely cause

Print Graphics

- Existing PDF and JPEG files account for <50% of printing
- Applications often need to use two different APIs to produce graphics for display vs. print
 - Less of an issue on the desktop
- WYSIWYG isn't the driving force for mobile
 - But it still helps to draw with the same APIs and data

!WYSIWYG

1 Infinite Loop, Cupertino, CA to San Francisco International Airport - Google Maps

http://maps.google.com/

1 infinite loop, cupertino, ca to sfo

Get directions My places

1 infinite loop, cupertino, ca

sfo

GET DIRECTIONS

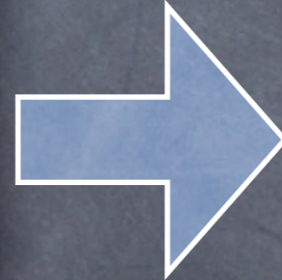
Suggested routes

US-101 N	31.3 mi, 37 mins
I-280 N	36.8 mi, 41 mins
I-280 N and US-101 N	35.7 mi, 42 mins

Driving directions to San Francisco International Airport

1 Infinite Loop
Cupertino, CA

1. Head north on Infinite Loop



1 Infinite Loop, Cupertino, CA to San Francisco International Airport - Google Maps

4/27/12 8:02 AM

To see all the details that are visible on the screen, use the "Print" link next to the map.

Google

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0.4 mi
0.9 mi
1.8 mi
3.6 mi
7.2 mi
14.4 mi
23.0 mi
45.7 mi
91.4 mi

Driving directions to San Francisco International Airport

(323) 932-6800

1 Infinite Loop
Cupertino, CA

1. Head north on Infinite Loop 121 ft
2. Turn left toward N De Anza Blvd 407 ft
3. Turn right onto N De Anza Blvd

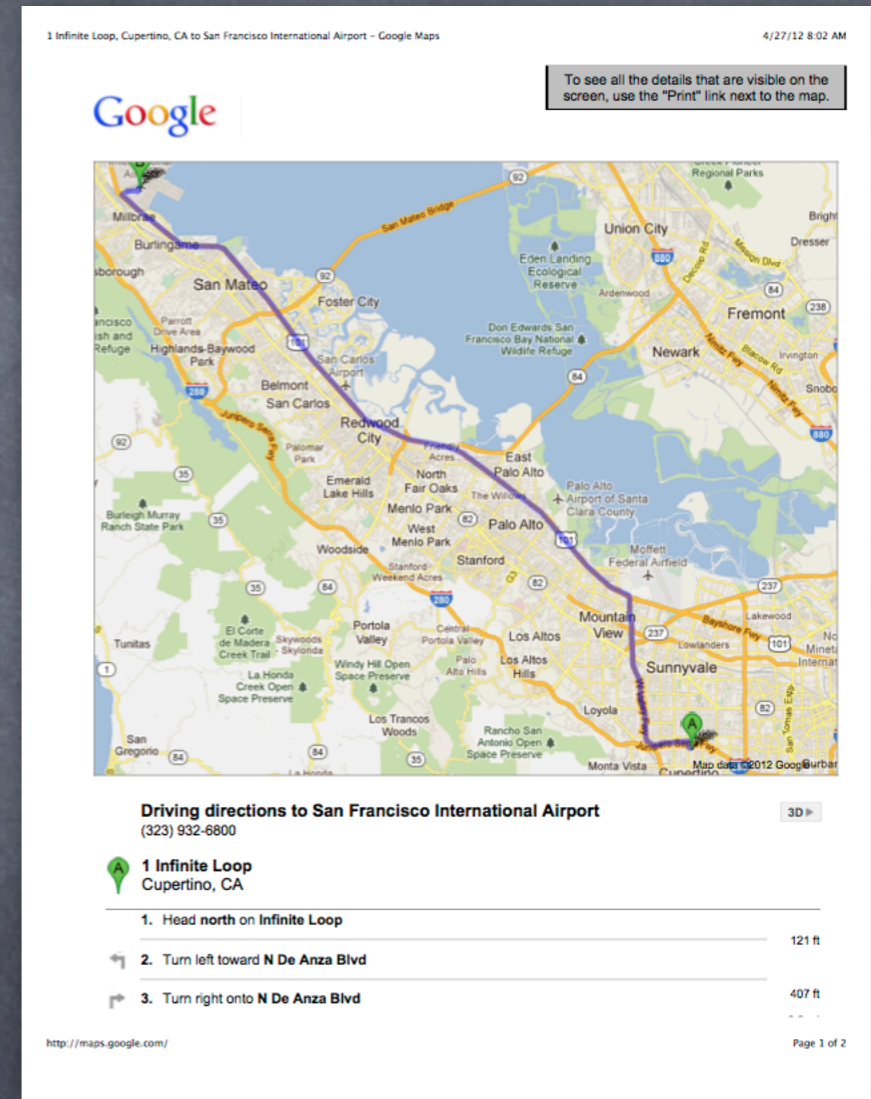
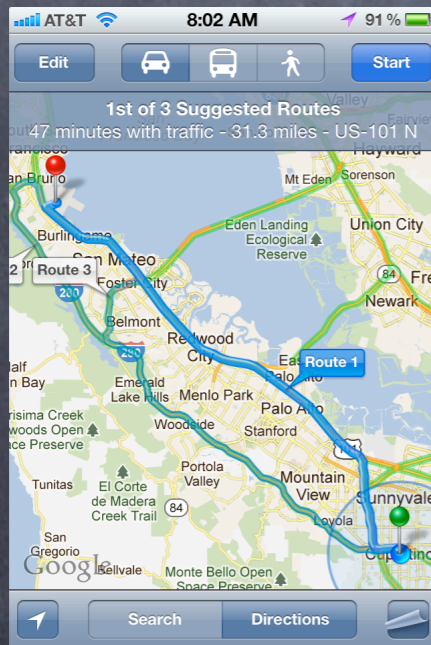
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!WYSIWYG



4/27/12 8:02 AM

- 0.4 mi
- 0.9 mi
- 5.5 mi
- 23.0 mi
- 0.4 mi
- 0.4 mi
- 0.5 mi
- 0.3 mi

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or notices

PDF Manipulation

- Creation (write)
- Rendering to screen/bitmap (read)
- Subsetting for page-ranges (read and write)
- Imposition for number-up, same-up, watermarking, etc. (read and write)
- Flattening for transparency and deep color (read and write)
 - although this is less of an issue with newer printers

Summary

- Need mobile print system (a la printerd)
- Need standard print dialog interface (D-Bus) linked to at least one reference implementation
- Need common screen/print drawing APIs
- Need PDF manipulation APIs/tools