The other side of Go

Programming Pictures

Anthony Starks


Go is great in the back end


But sometimes it's about the picture

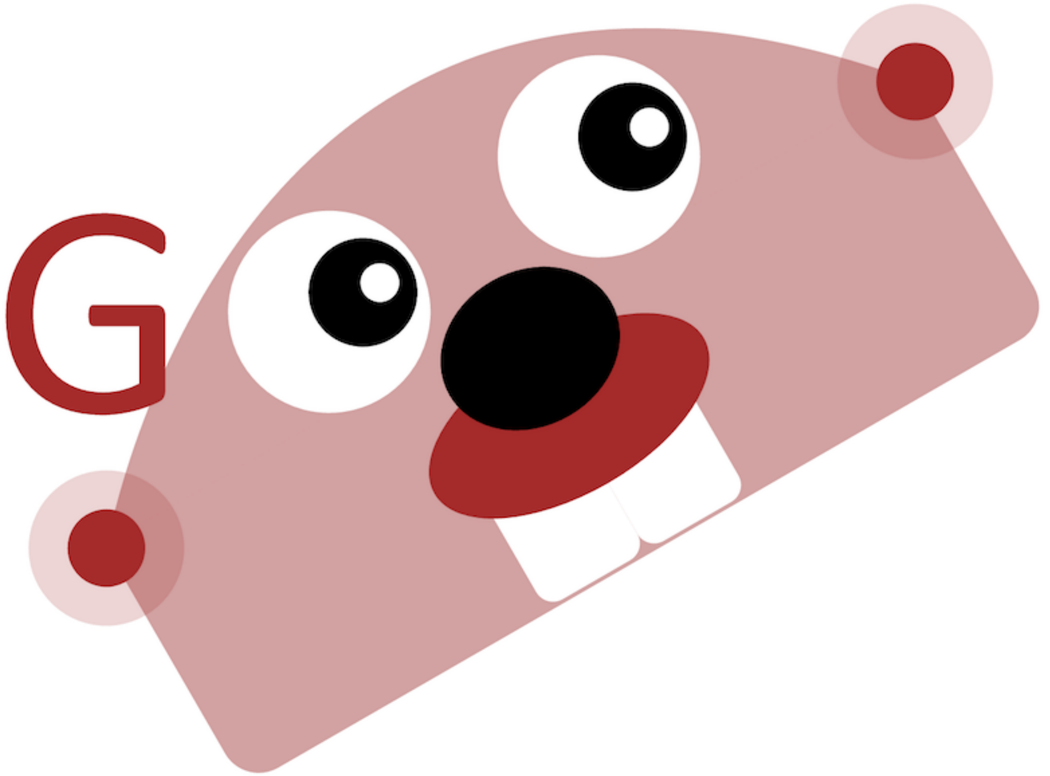
API Design

Client Program Design

Visual Design and Relationships

Why Go?

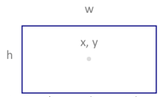
SVG



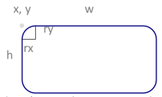
SVG Go Library

github.com/ajstarks/svgo

Rect(x, y, w, h int, style ...string)



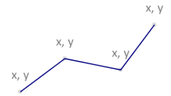
CenterRect(x, y, w, h int, style ...string)



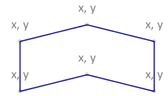
Roundrect(x, y, w, h, rx, ry int, style ...string)

Square(x, y, w int, style ...string)

Line(x1, y1, x2, y2 int, style ...string)



Polyline(x, y []int, style ...string)



Polygon(x, y []int, style ...string)

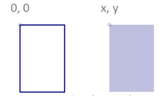
Circle(x, y, r int, style ...string)

Ellipse(x, y, rx, ry int, style ...string)

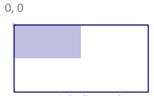
Arc(sx, sy, ax, ay, r int, lflag, sflag bool, ex, ey int, style ...string)

Qbez(sx, sy, cx, cy, ex, ey int, style ...string)

Bezier(sx, sy, cx, cy, px, py, ex, ey int, style ...string)



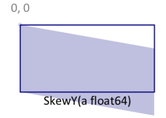
Translate(x, y int)



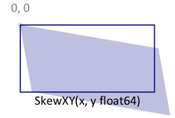
Scale(n float64)

ScaleXY(x, y float64)

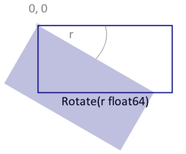
SkewX(a float64)



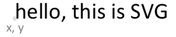
SkewY(a float64)



SkewXY(x, y float64)



Rotate(r float64)

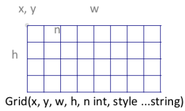


Text(x, y int, s string, style ...string)

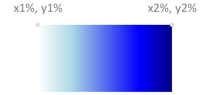
Textpath(s, pathid string, style ...string)

Path(s string, style ...string)

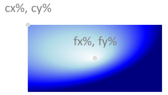
Image(x, y, w, h, int path string, style ...string)



Grid(x, y, w, h, n int, style ...string)



LinearGradient(s string, x1, y1, x2, y2 uint8, oc []Offcolor)



RadialGradient(s string, cx, cy, r, fx, fy uint8, oc []Offcolor)

RGB(r, g, b int)

RGBA(r, g, b int, opacity float64)

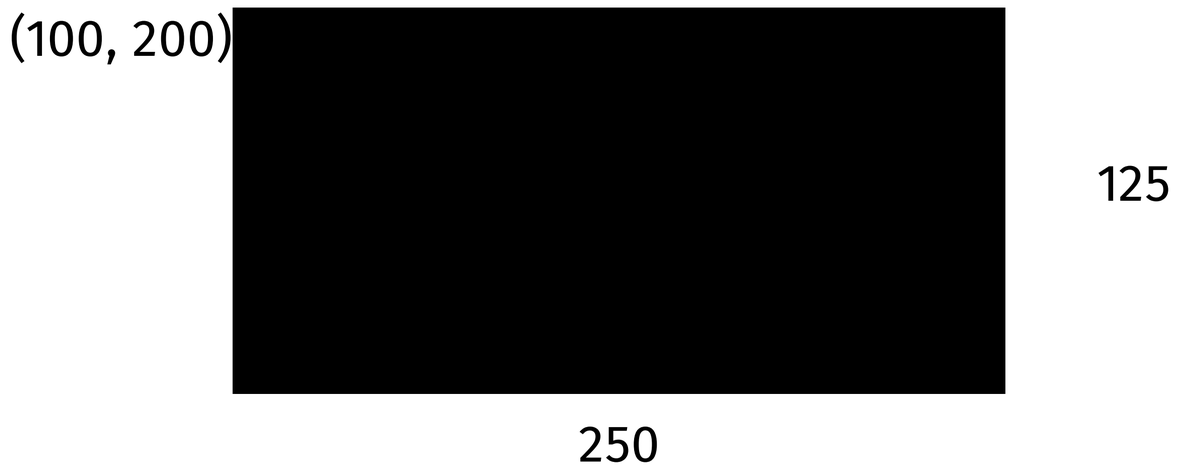
New(w io Writer)	specify destination
Start(w, h int, options ...string)/End()	begin/end the document
Startview(w, h, minx, miny, vw, vh int)	begin/end the document with viewport
Group(s ...string)/Gend()	begin/end group with attributes
Gstyle(s string)/Gend()	begin/end group style
Gtransform(s string)/Gend()	begin/end group transform
Gid(id string)/Gend()	begin/end group id
ClipPath(s ...string)/ClipEnd()	begin/end clip path
Def()/DefEnd()	begin/end a defintion block
Marker()/MarkerEnd()	begin/end markers
Pattern()/PatternEnd()	begin/end pattern
Desc(s string)	set the description element
Title(s string)	set the title element
Script(type, data ...string)	define a script
Mask(id string, x, y, w, h int, style ...string)/MaskEnd()	begin/end mask element
Link(href string, title string)/LinkEnd()	begin/end link to href, with a title
Use(x int, y int, link string, style ...string)	use defined objects

Element

Arguments

Rect (100,200,250,125)

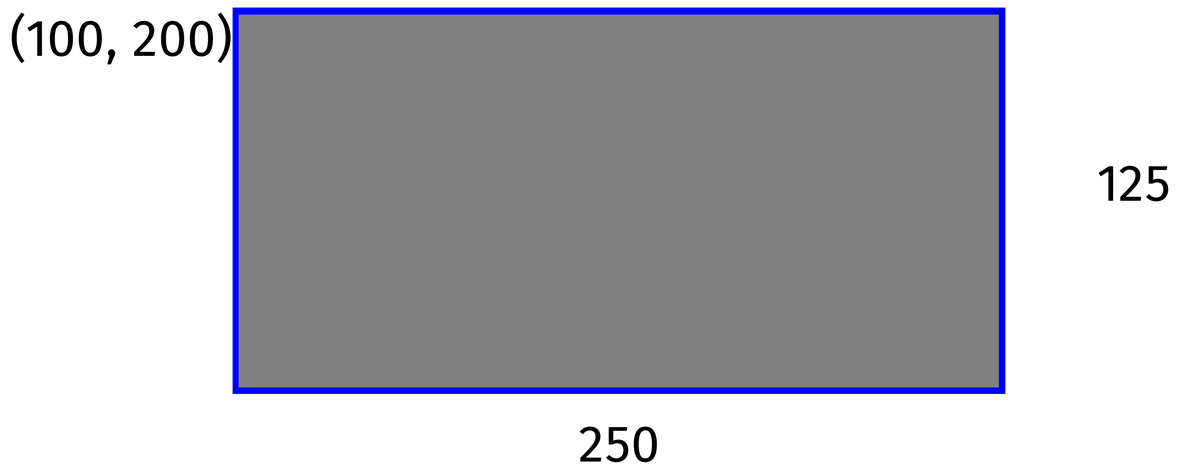
```
<rect x="100" y="200" width="250" height="125"/>
```



Element | Arguments | CSS Style

Rect (100,200,250,125, "fill:gray;stroke:blue")

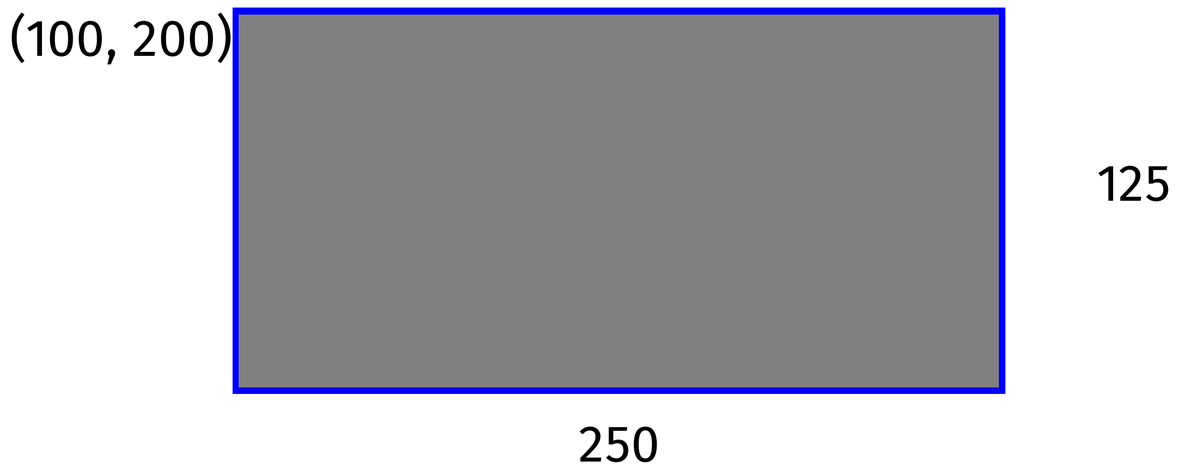
```
<rect x="100" y="200" width="250" height="125"
style="fill:gray;stroke:blue"/>
```

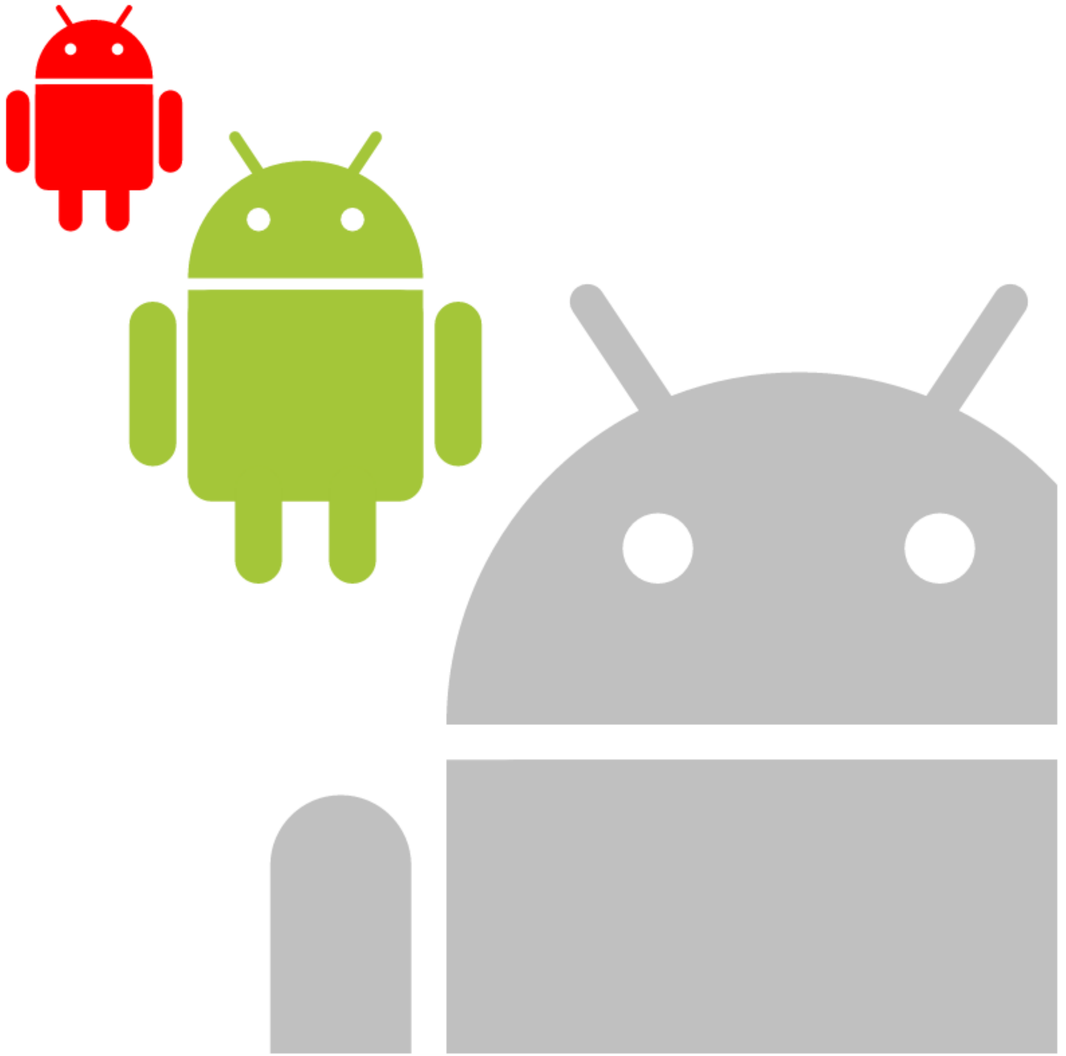


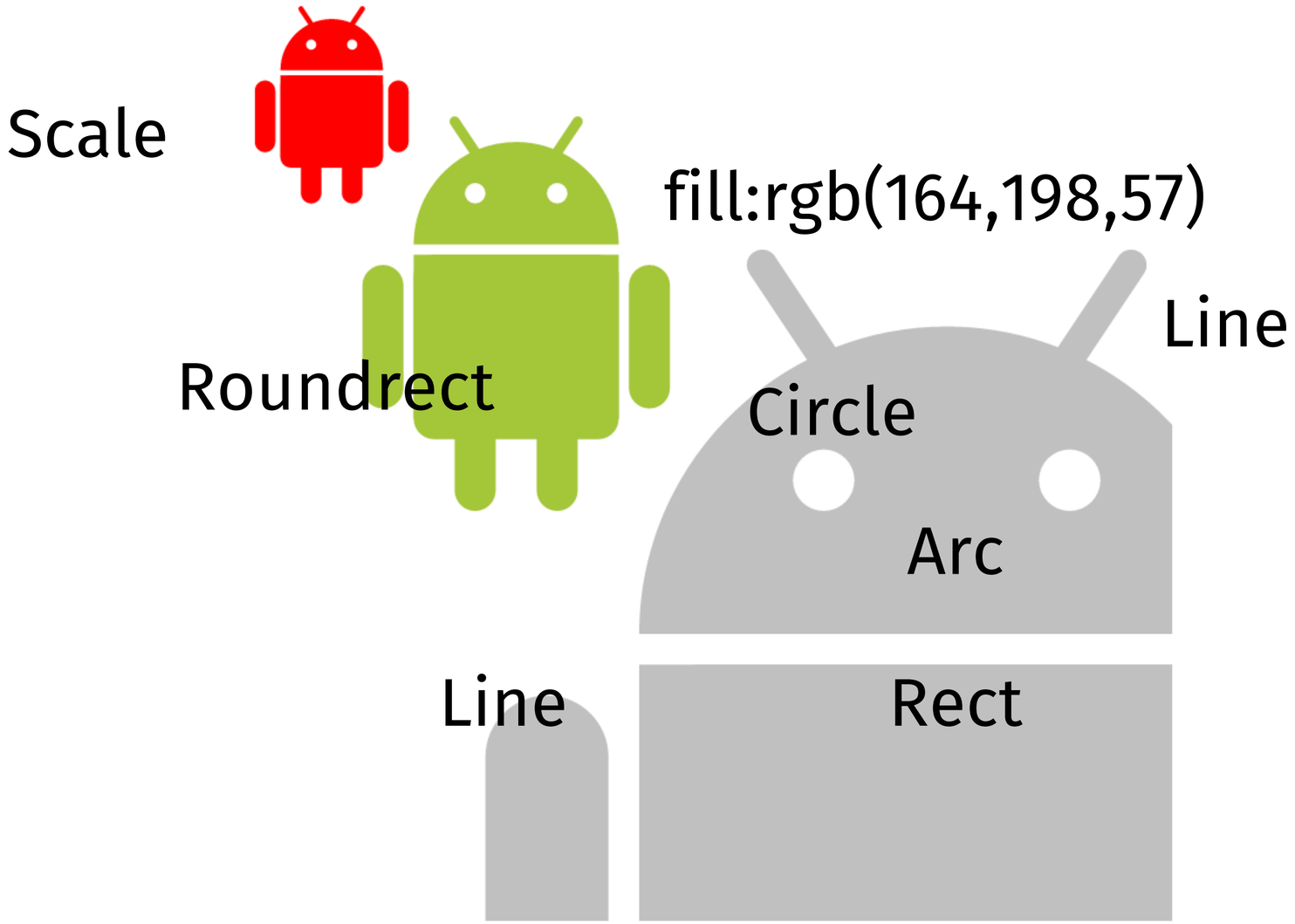
Element | Arguments | Attributes

```
Rect (100,200,250,125,
  `id="box"`, `fill="gray"`, `stroke="blue"`)
```

```
<rect x="100" y="200" width="250" height="125"
id="box" fill="gray" stroke="blue"/>
```

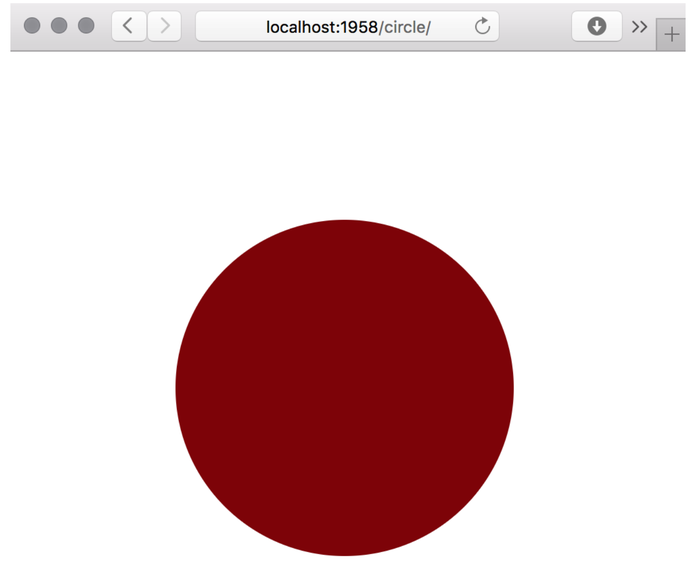


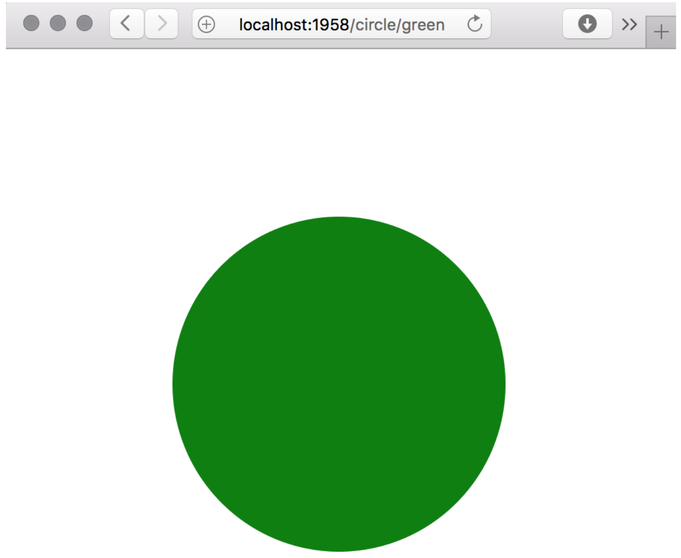



Scale
fill:rgb(164,198,57)
Roundrect
Line
Circle
Arc
Line
Rect

```
package main

import (
    "os"
    "github.com/ajstarks/svgo"
)

func main() {
    width := 960
    height := 540
    canvas := svg.New(os.Stdout)
    canvas.Start(width, height)
    canvas.Rect(0, 0, width, height, "fill:black")
    canvas.Circle(width/2, height, width/2, "fill:rgb(44,77,232)")
    canvas.Text(width/2, height/2, "hello, world",
        "fill:white;font-size:60pt;font-family:serif;text-anchor:middle")
    canvas.End()
}
```

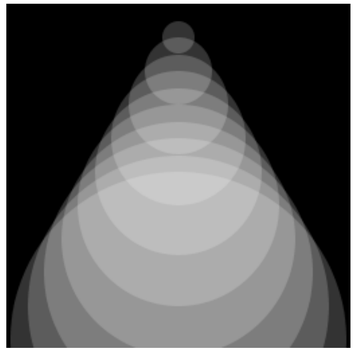
```
package main

import (
    "github.com/ajstarks/svgo"
    "log"
    "net/http"
    "strings"
)

const defaultstyle = "fill:rgb(127,0,0)"

func main() {
    http.Handle("/circle/", http.HandlerFunc(circle))
    err := http.ListenAndServe("localhost:1958", nil)
    if err != nil {
        log.Println("ListenAndServe:", err)
    }
}

func circle(w http.ResponseWriter, req *http.Request) {
    w.Header().Set("Content-Type", "image/svg+xml")
    s := svg.New(w)
    s.Start(500, 500)
    s.Title("Circle")
    s.Circle(250, 250, 125, shapestyle(req.URL.Path))
    s.End()
}

func shapestyle(path string) string {
    i := strings.LastIndex(path, "/") + 1
    if i > 0 && len(path[i:]) > 0 {
        return "fill:" + path[i:]
    }
    return defaultstyle
}
```



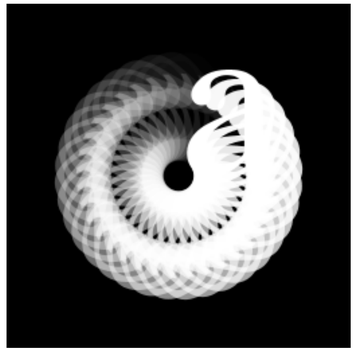


http://ajstarks.org:1958/{thing}/

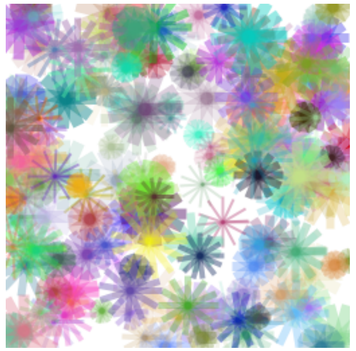
clock



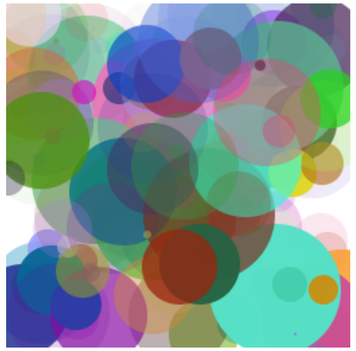
funnel



rotext

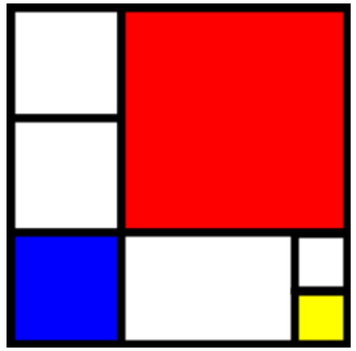


flower

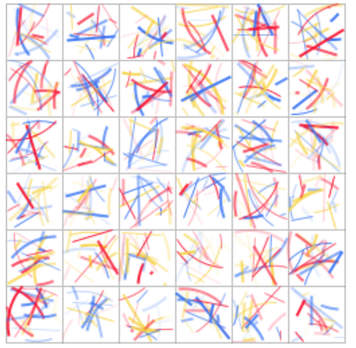


rshape

cube



mondrian

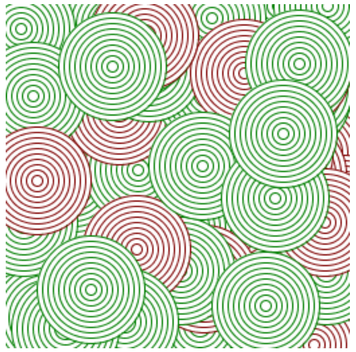


lewitt

face

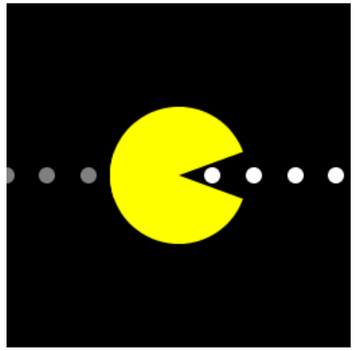
pacman

tux



concentric

http://ajstarks.org:1958/pacman/?angle=20



http://ajstarks.org:1958/pacman/?angle=40

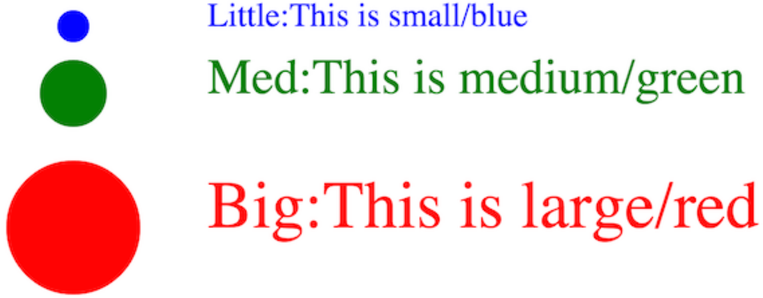
http://ajstarks.org:1958/pacman/?angle=70

Read/Parse/Draw Pattern

Data

```
<thing top="100" left="100" sep="100">
   <item width="50"  height="50"  name="Little" color="blue">This is small</item>
   <item width="75"  height="100" name="Med"    color="green">This is medium</item>
   <item width="100" height="200" name="Big"    color="red">This is large</item>
</thing>
```

Picture



Imports

```
package main
import (
    "encoding/xml"
    "flag"
    "fmt"
    "io"
    "os"
    "github.com/ajstarks/svgo"
)
```

Data Structures

```
type Thing struct {
    Top  int    `xml:"top,attr"`
    Left int    `xml:"left,attr"`
    Sep  int    `xml:"sep,attr"`
    Item []item `xml:"item"`
}

type item struct {
    Width  int    `xml:"width,attr"`
    Height int    `xml:"height,attr"`
    Name   string `xml:"name,attr"`
    Color  string `xml:"color,attr"`
    Text   string `xml:",chardata"`
}
```

Flags and Main

```
var (
    width  = flag.Int("w", 1024, "width")
    height = flag.Int("h", 768, "height")
    canvas = svg.New(os.Stdout)
)

func main() {
        flag.Parse()
        for _, f := range flag.Args() {
                canvas.Start(*width, *height)
                dothing(f)
                canvas.End()
        }
}
```

Read the Input

```
func dothing(location string) {
    f, err := os.Open(location)
    if err != nil {
        fmt.Fprintf(os.Stderr, "%v\n", err)
        return
    }
    defer f.Close()
    readthing(f)
}
```

Parse and Load

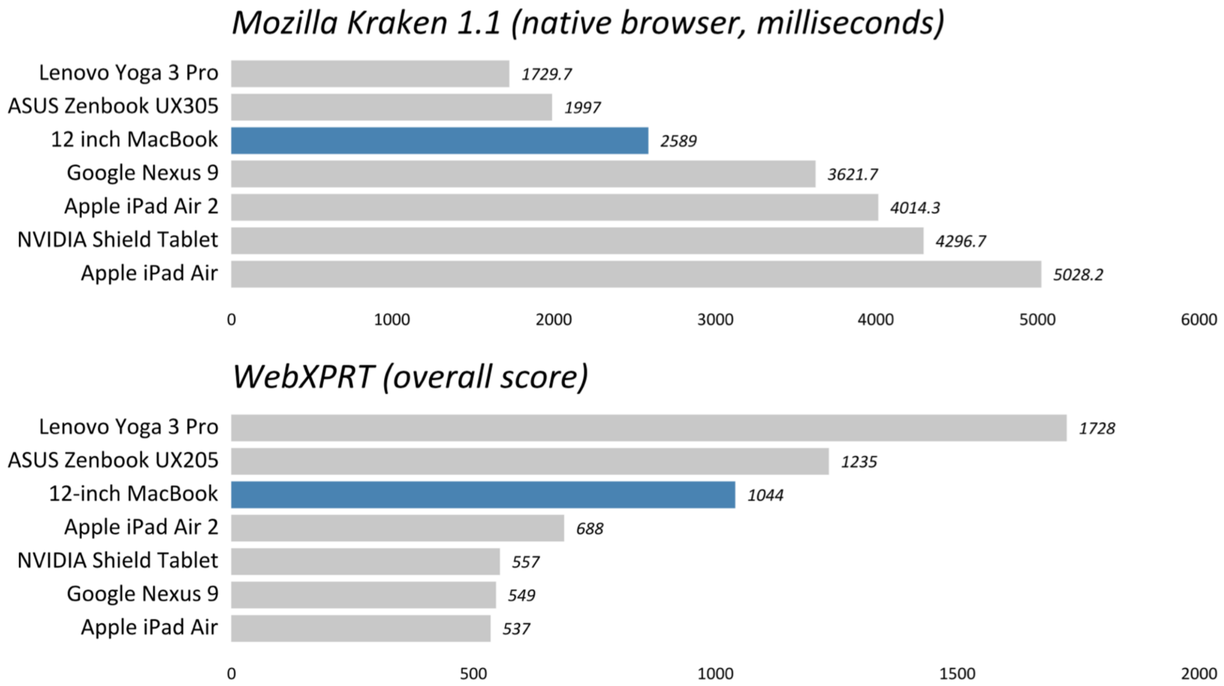
```
func readthing(r io.Reader) {
    var t Thing
    err := xml.NewDecoder(r).Decode(&t)
    if err != nil {
        fmt.Fprintf(os.Stderr, "%v\n", err)
        return
    }
    drawthing(t)
}
```

Draw

```
func drawthing(t Thing) {
    x := t.Left
    y := t.Top
    thingfmt := "font-size:%dpx;fill:%s"
    tfmt := "%s:%s/%s"
    for _, v := range t.Item {
        s := fmt.Sprintf(thingfmt,
                    v.Width/2, v.Color)
        canvas.Circle(x, y, v.Height/4,
                    "fill:"+v.Color)
        canvas.Text(x+t.Sep, y,
        fmt.Sprintf(tfmt,
                    v.Name, v.Text, v.Color, s)
        y += v.Height
    }
}
```

barchart -showdata -showtitle benchmarks.xml

```
<barchart title="2015 MacBook Benchmarks">
    <note>Source: AnandTech, April 14, 2015</note>
    <bdata scale="0,6000,1000"
        title="Mozilla Kraken 1.1 (native browser, milliseconds)">
       <bitem value="1729.7" name="Lenovo Yoga 3 Pro"/>
       <bitem value="1997.0" name="ASUS Zenbook UX305"/>
       <bitem color="steelblue" value="2589.0" name="12 inch MacBook"/>
       <bitem value="3621.7" name="Google Nexus 9"/>
       <bitem value="4014.3" name="Apple iPad Air 2"/>
       <bitem value="4296.7" name="NVIDIA Shield Tablet"/>
       <bitem value="5028.2" name="Apple iPad Air"/>
    </bdata>
    <bdata scale="0,2000,500"
        title="WebXPRT (overall score)">
       <bitem value="1728" name="Lenovo Yoga 3 Pro"/>
       <bitem value="1235" name="ASUS Zenbook UX205"/>
       <bitem color="steelblue" value="1044" name="12-inch MacBook"/>
       <bitem value="688" name="Apple iPad Air 2"/>
       <bitem value="557" name="NVIDIA Shield Tablet"/>
       <bitem value="549" name="Google Nexus 9"/>
       <bitem value="537" name="Apple iPad Air"/>
    </bdata>
</barchart>
```



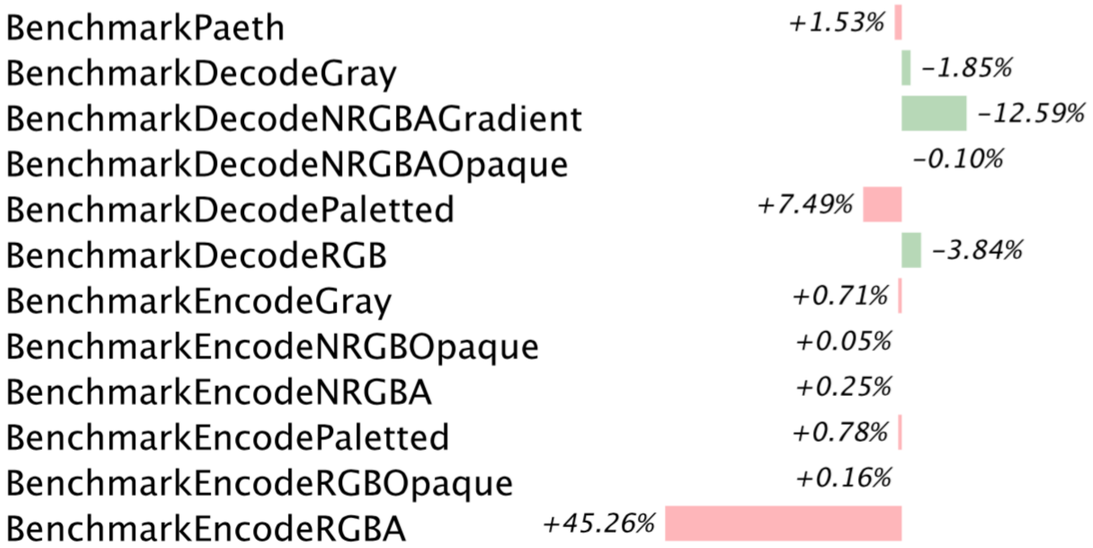
2015 MacBook Benchmarks

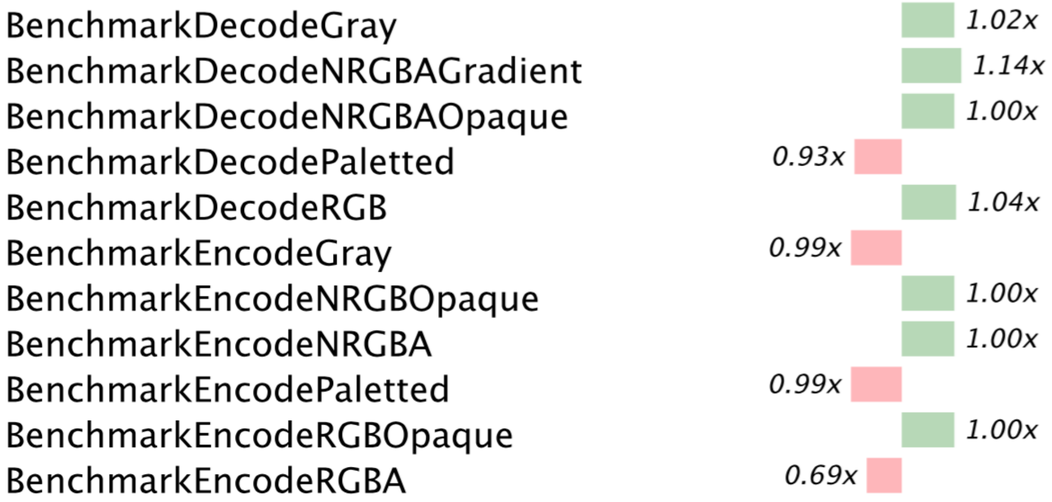
Source: AnandTech, April 14, 2015

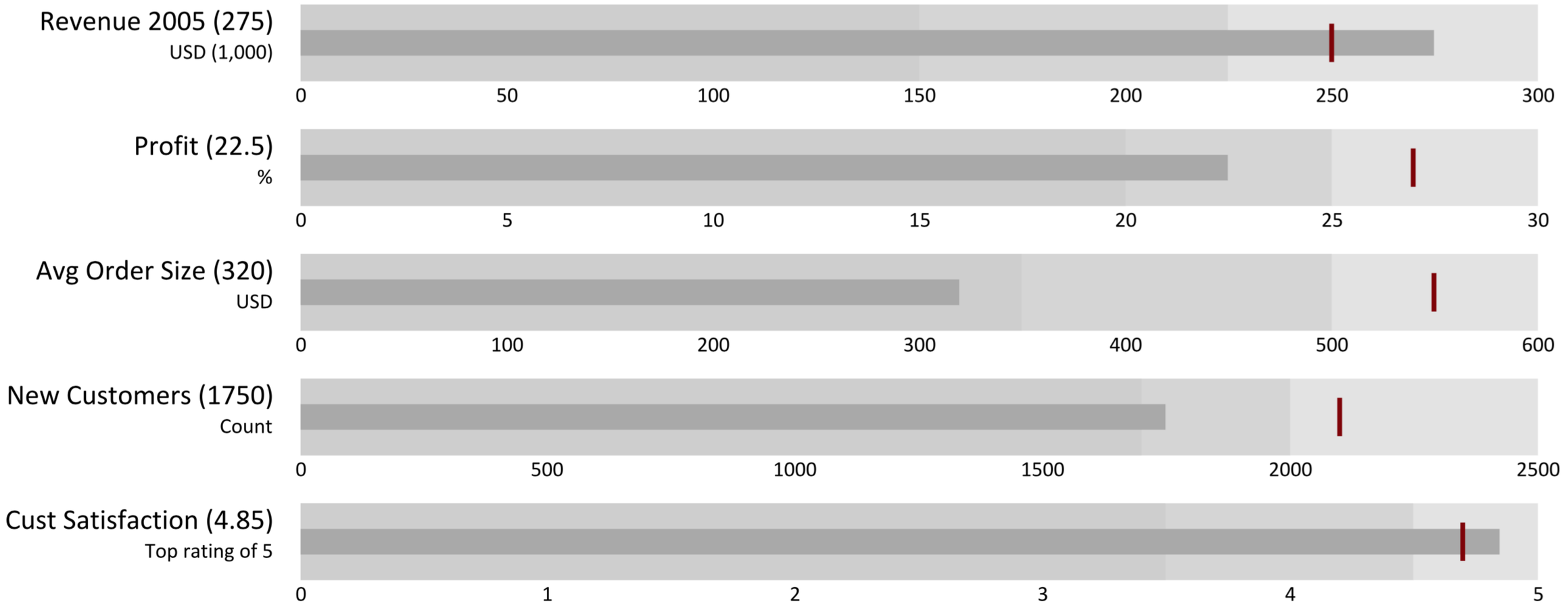
SVGo Clients

benchpng.txt

image/png package: Go 1.3 vs Go 1.4

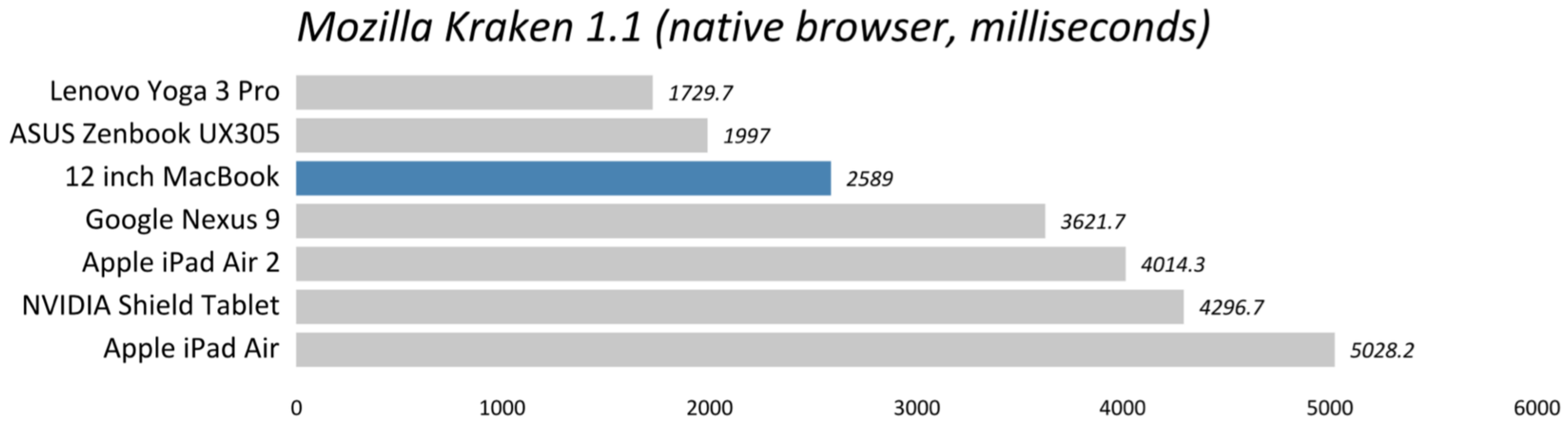


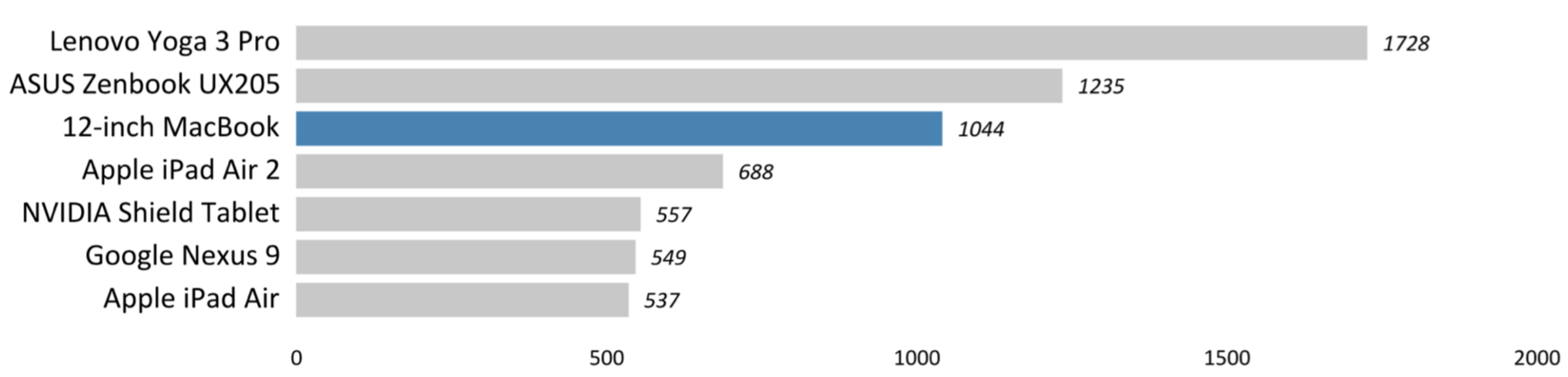




Sample Bullet Graph

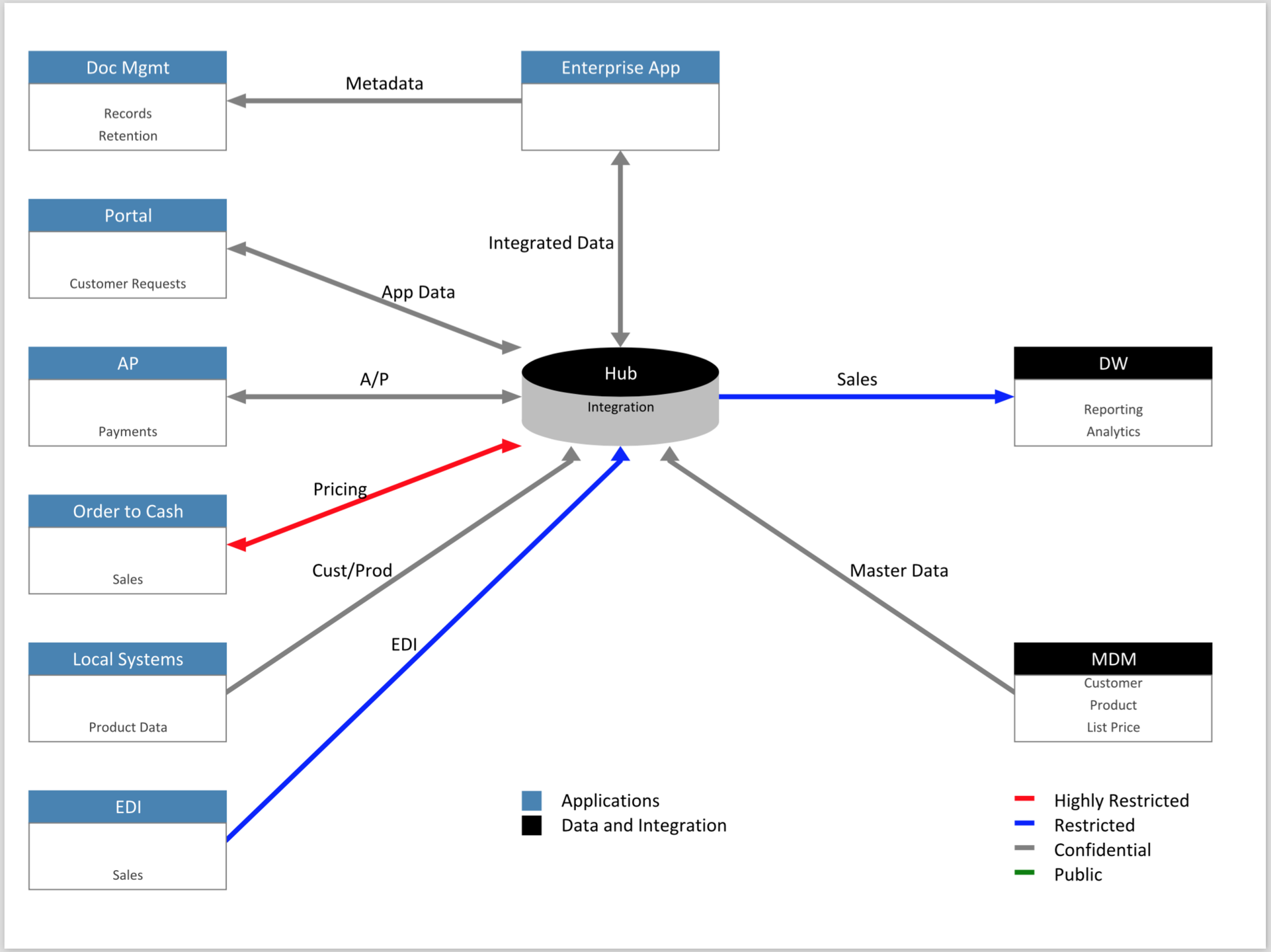
The bullet graph features a single, primary measure (for example, current year-to-date revenue) compares that measure to one or more other measures to enrich its meaning, for example, compared to a target), and displays it in the context of qualitative ranges of performance, such as poor, satisfactory, and good.





2015 MacBook Benchmarks

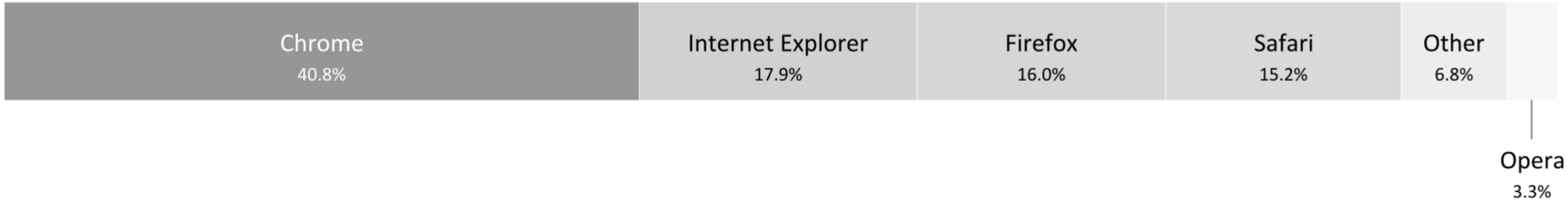
Source: AnandTech, April 14, 2015


Doc Mgmt
Records
Retention
Metadata
Enterprise App
Portal
Customer Requests
App Data
Integrated Data
AP
Payments
A/P
Hub
Integration
Sales
DW
Reporting
Analytics
Pricing
Order to Cash
Sales
Cust/Prod
Master Data
Local Systems
Product Data
EDI
MDM
Customer
Product
List Price
EDI
Sales
Applications
Data and Integration
Highly Restricted
Restricted
Confidential
Public

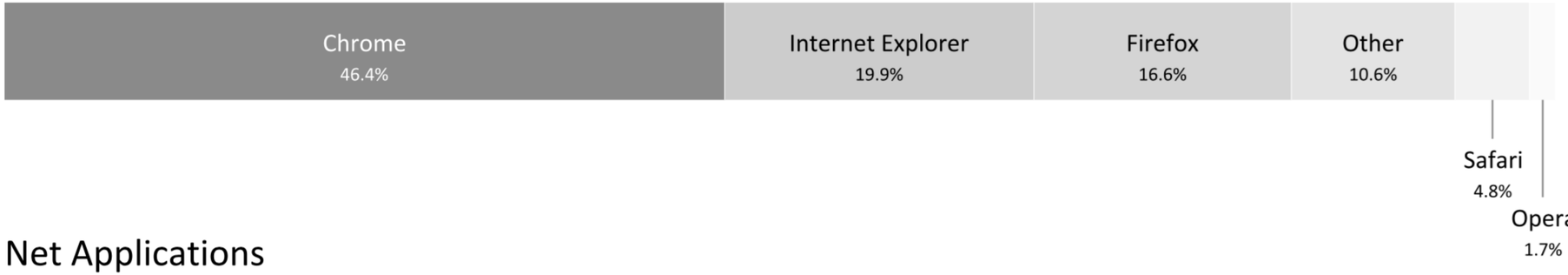
Browser Market Share

StatCounter

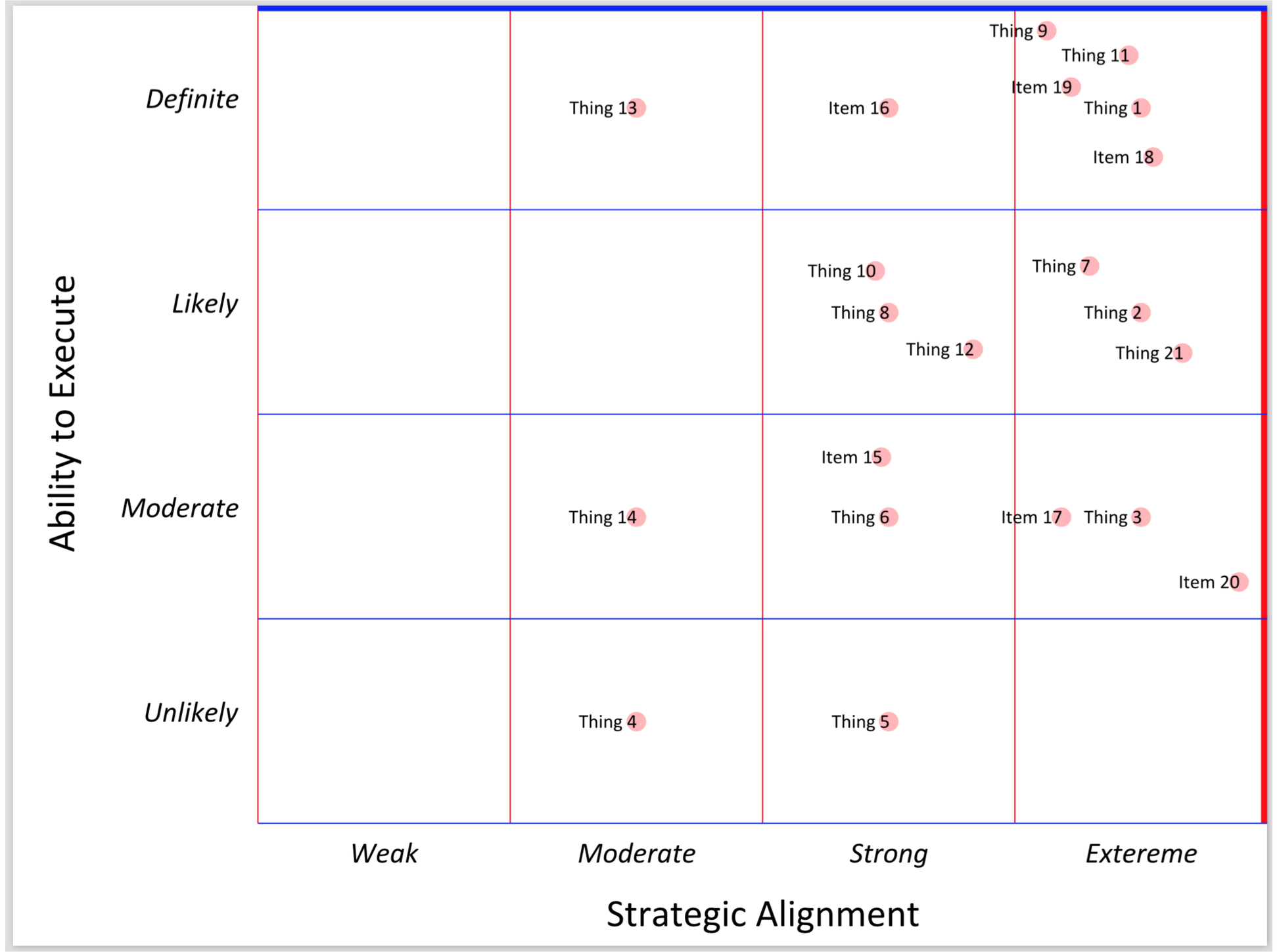
W3C Counter



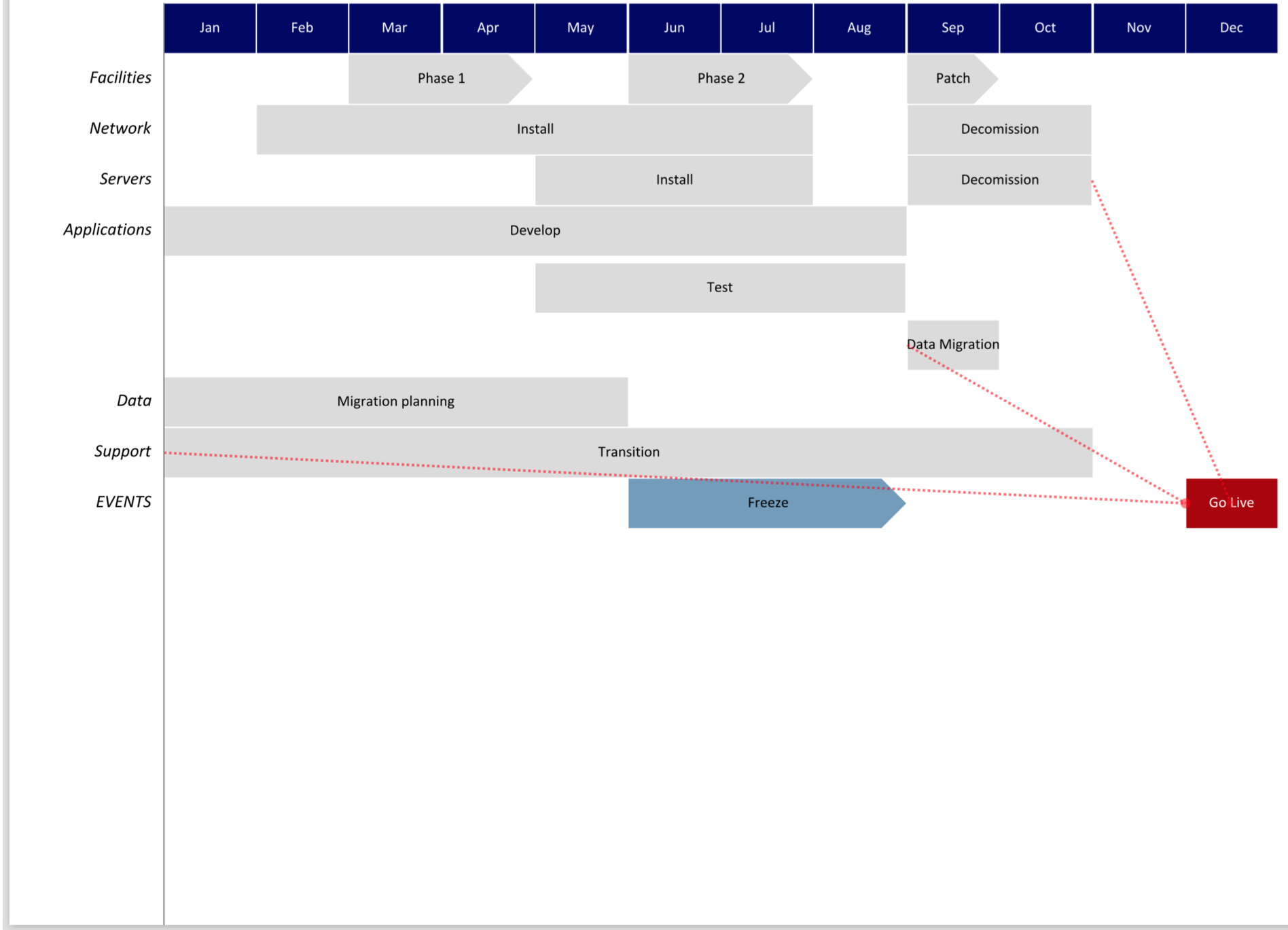
Wikimedia

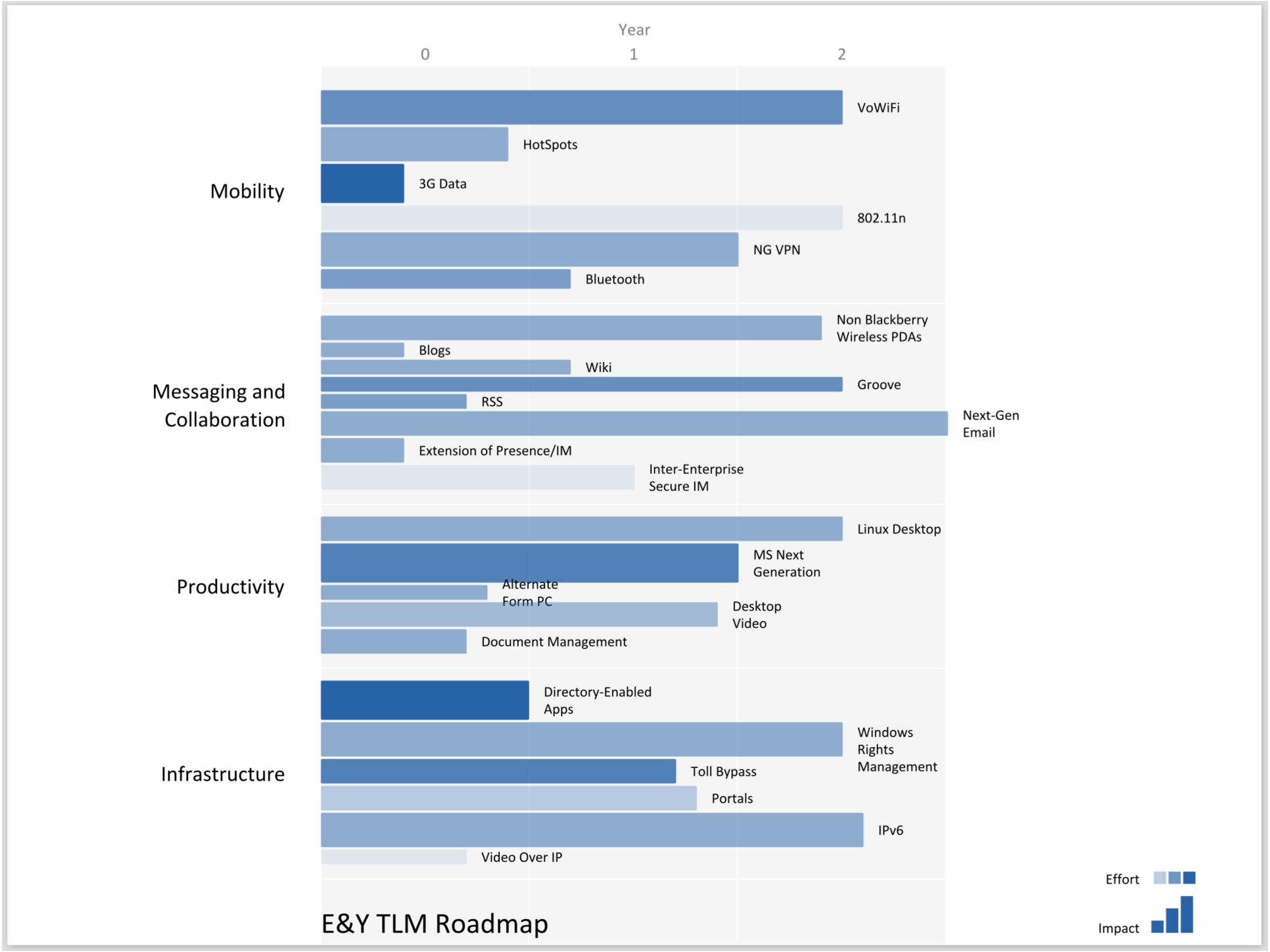


Net Applications

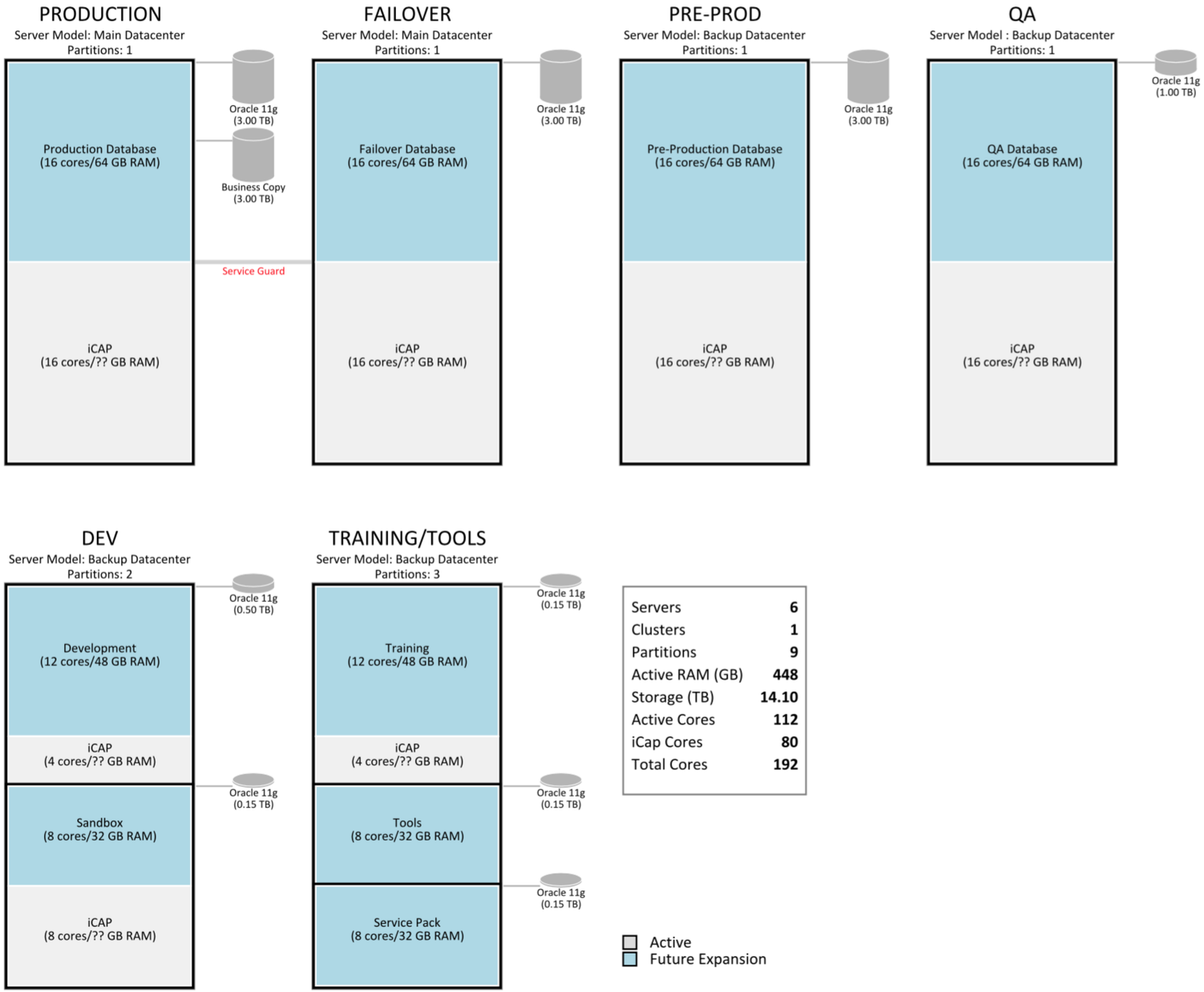

Ability to Execute
Definite
Likely
Moderate
Unlikely
Thing 9
Thing 11
Item 19
Thing 13
Item 16
Thing 1
Item 18
Thing 10
Thing 7
Thing 8
Thing 2
Thing 12
Thing 21
Item 15
Thing 14
Thing 6
Item 17
Thing 3
Item 20
Thing 4
Thing 5
Weak
Moderate
Strong
Extereme
Strategic Alignment

PLANNING TO PLAN



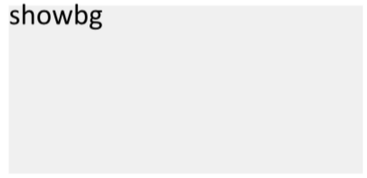

Year
0
1
2
Mobility
VoWiFi
HotSpots
3G Data
802.11n
NG VPN
Bluetooth
Messaging and Collaboration
Non Blackberry Wireless PDAs
Blogs
Wiki
Groove
RSS
Next-Gen Email
Extension of Presence/IM
Inter-Enterprise Secure IM
Productivity
Linux Desktop
MS Next Generation
Alternate Form PC
Desktop Video
Document Management
Infrastructure
Directory-Enabled Apps
Windows Rights Management
Toll Bypass
Portals
IPv6
Video Over IP
E&Y TLM Roadmap
Effort
Impact

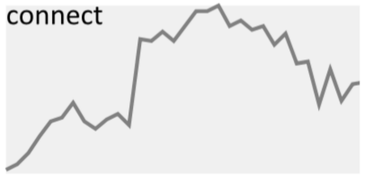

Year 3
Year 2
Year 1
Messaging and Collaboration
Productivity
Mobility
Infrastructure
Next-Gen Email
Linux Desktop
Groove
Inter-Enterprise Secure IM
MS Next Generation
Wiki
RSS
Extension of Presence/IM
Alternate Form PC
Desktop Video
Non Blackberry Wireless PDAs
Blogs
Document Management
READY
Bluetooth
3G Data
Directory-Enabled Apps
NG VPN
Video Over IP
HotSpots
Toll Bypass
Windows Rights Management
802.11n
Portals
VoWiFi
IPv6
E&Y TLM Roadmap

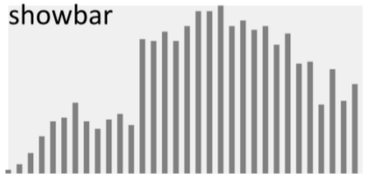


Server Layout

Tue May 6 13:39:23 2014


showbg


connect


showbar


area

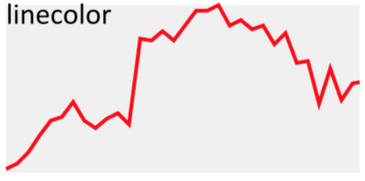

showdot


showx


623.0
589.8
556.5
523.2
490.0
showy


test.d


bgcolor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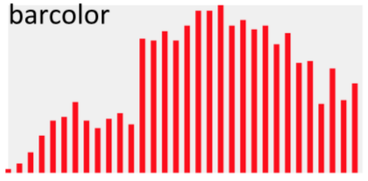
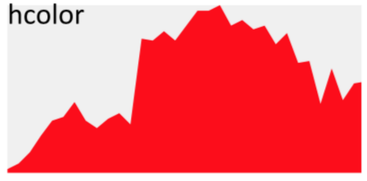
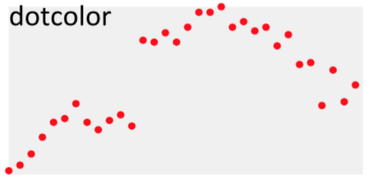
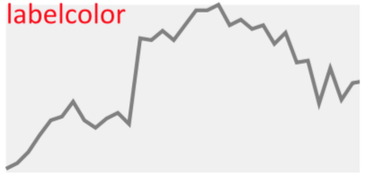
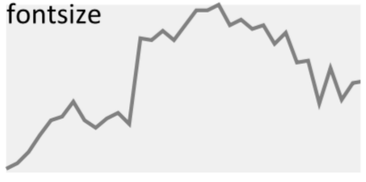

barcolor


hcolor

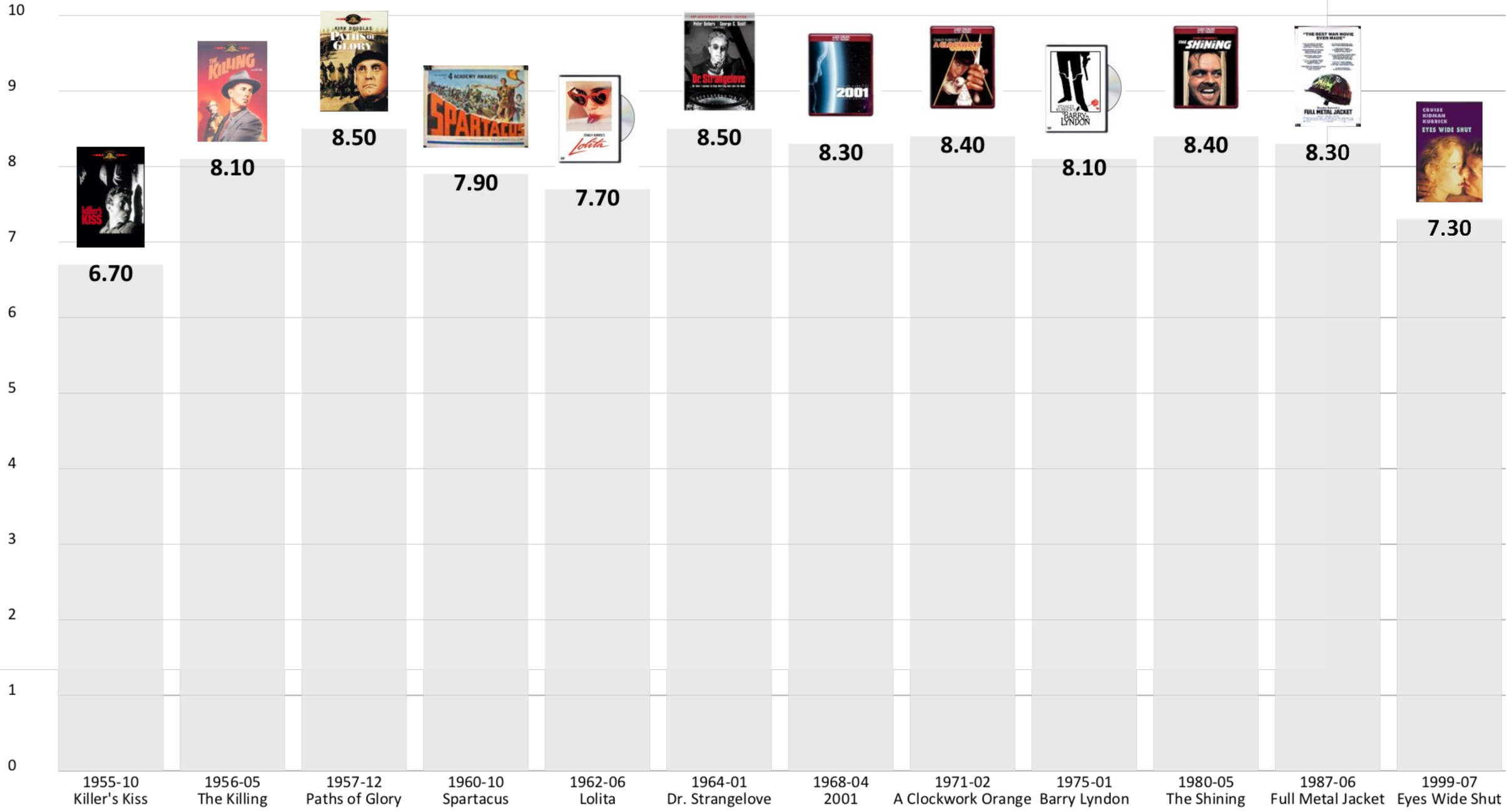

dotcolor


labelcolor

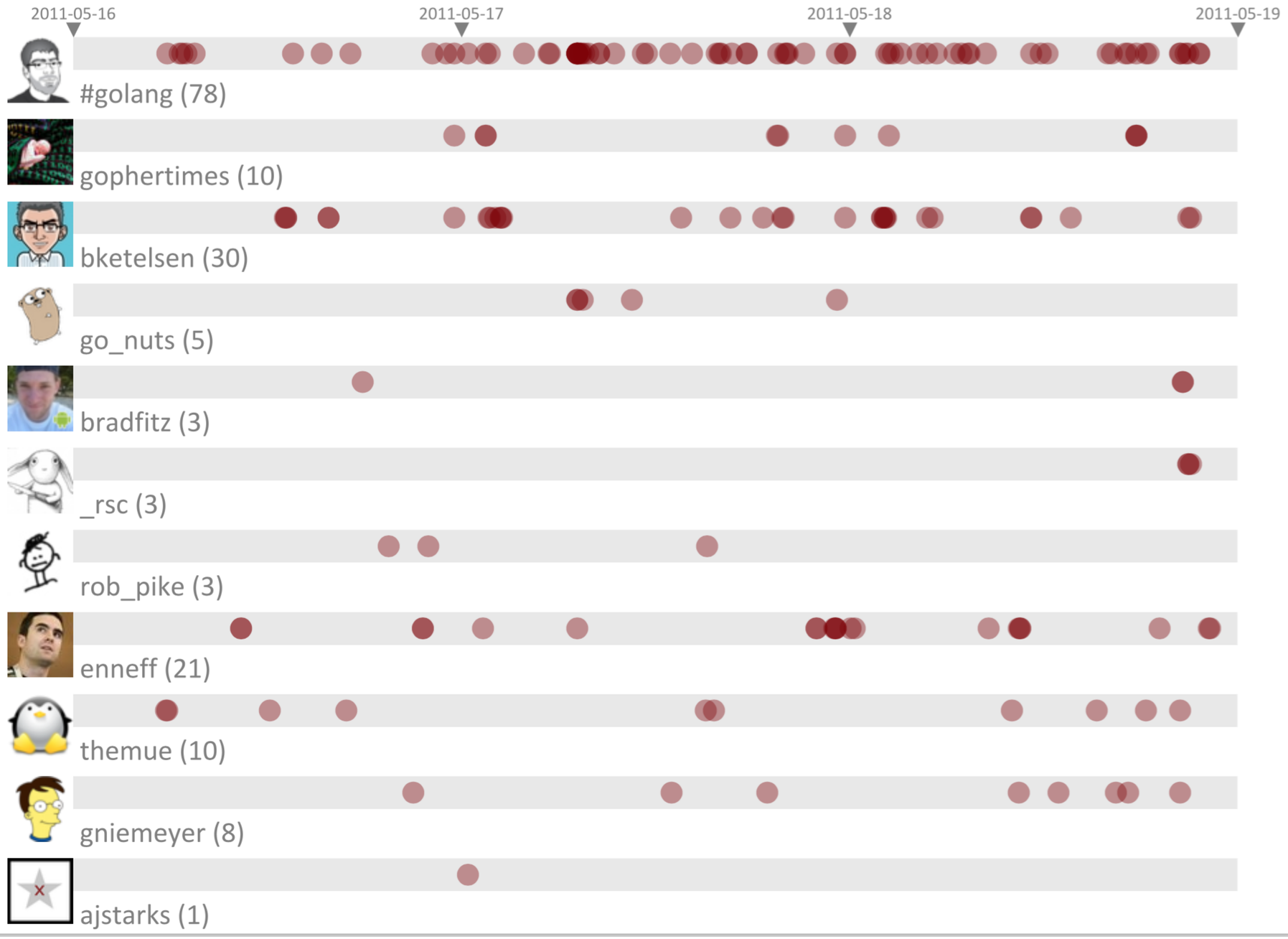

fontsize


font

IMDB Ratings of Kubrick Films



Twitter Update Frequency

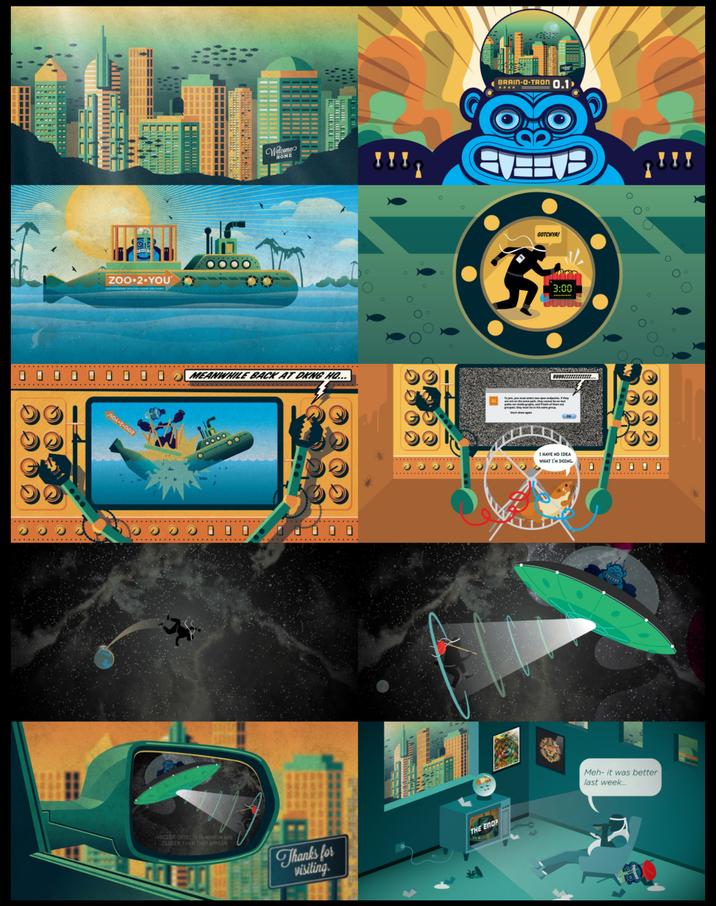


JONES
MONTIEL

- LAYER TENNIS SEASON 4 WEEK 6 MATCH COMMENTARY BY MIKE MONTEIRO -

DKNG
DDL

- LAYER TENNIS SEASON 4 WEEK 7 MATCH COMMENTARY BY JOHN GRUBER -



ANDERSON
DKNG

- LAYER TENNIS SEASON 4 PLAYOFF QUARTERFINAL COMMENTARY BY BRYAN BEDELL -

CONTINO CASSARO

PUTNAM STOCKS

WHITE TAYLOR

HALL WARREN

STRAWBERRYLUNA DOUBLENAUT

JONES MONTIEL

DKNG DDL

SHAWNA X STEVENS

TAYLOR JONES

PUTNAM RAJKUMAR

REYES WHITE

ANDERSON DKNG

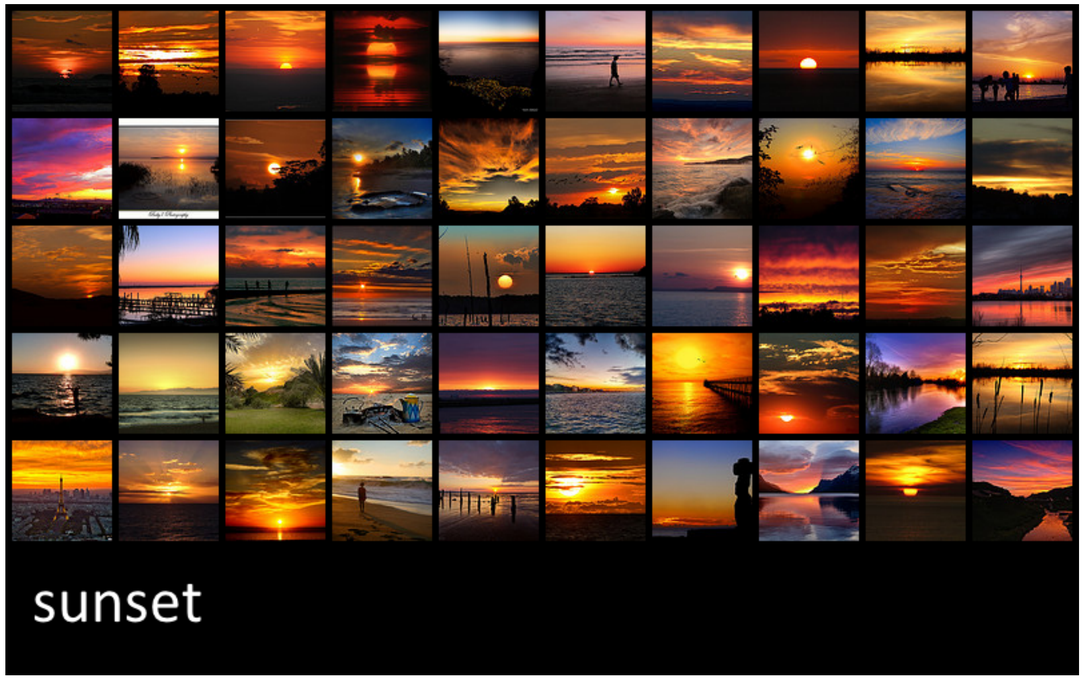
TAYLOR WHITE

RAJKUMAR ANDERSON

ANDERSON WHITE

f50 sunset

https://api.flickr.com/services/rest/
?method=flickr.photos.search
&api_key=...
&text=sunset
&per_page=50
&sort=interestingness-desc

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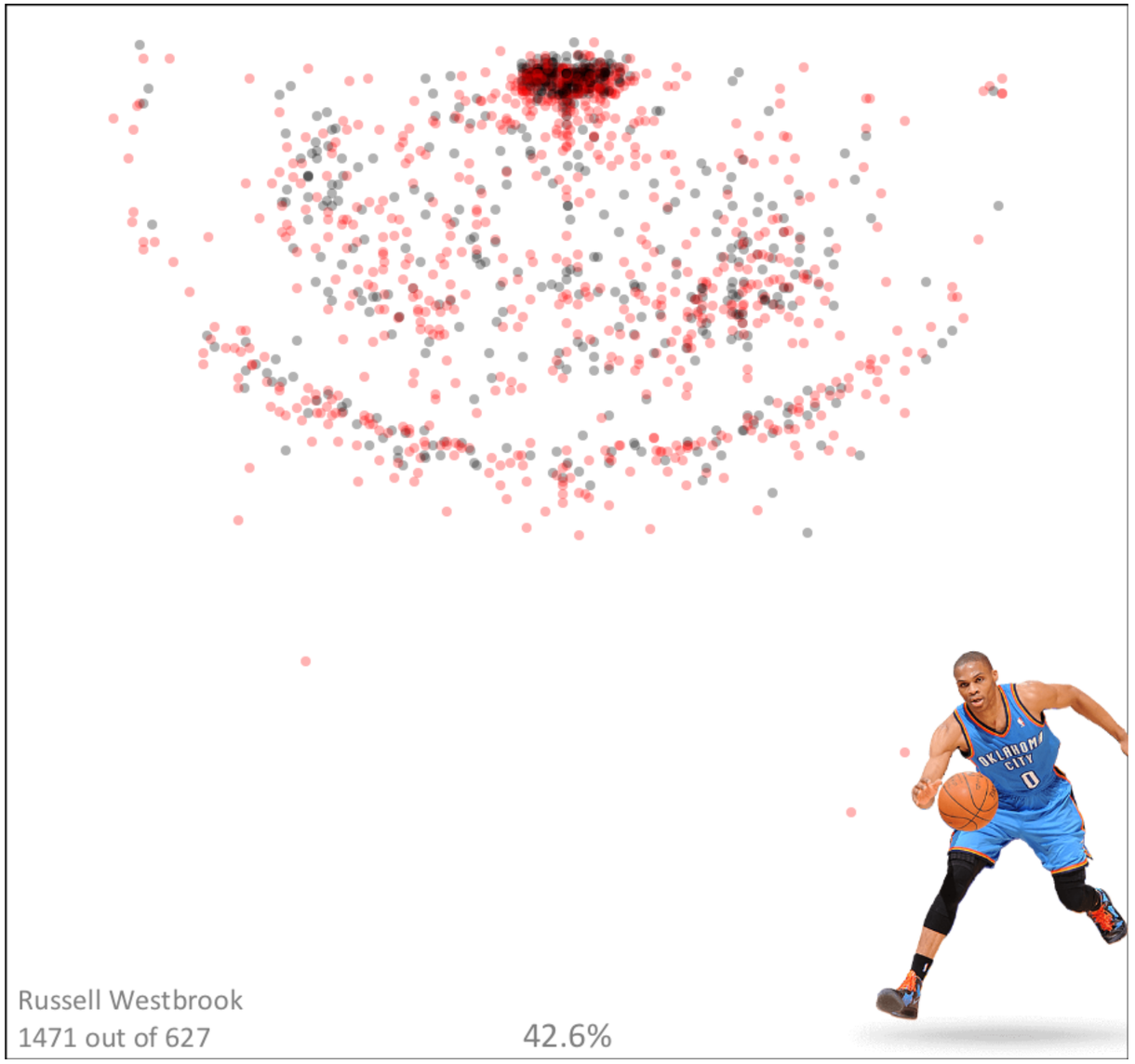
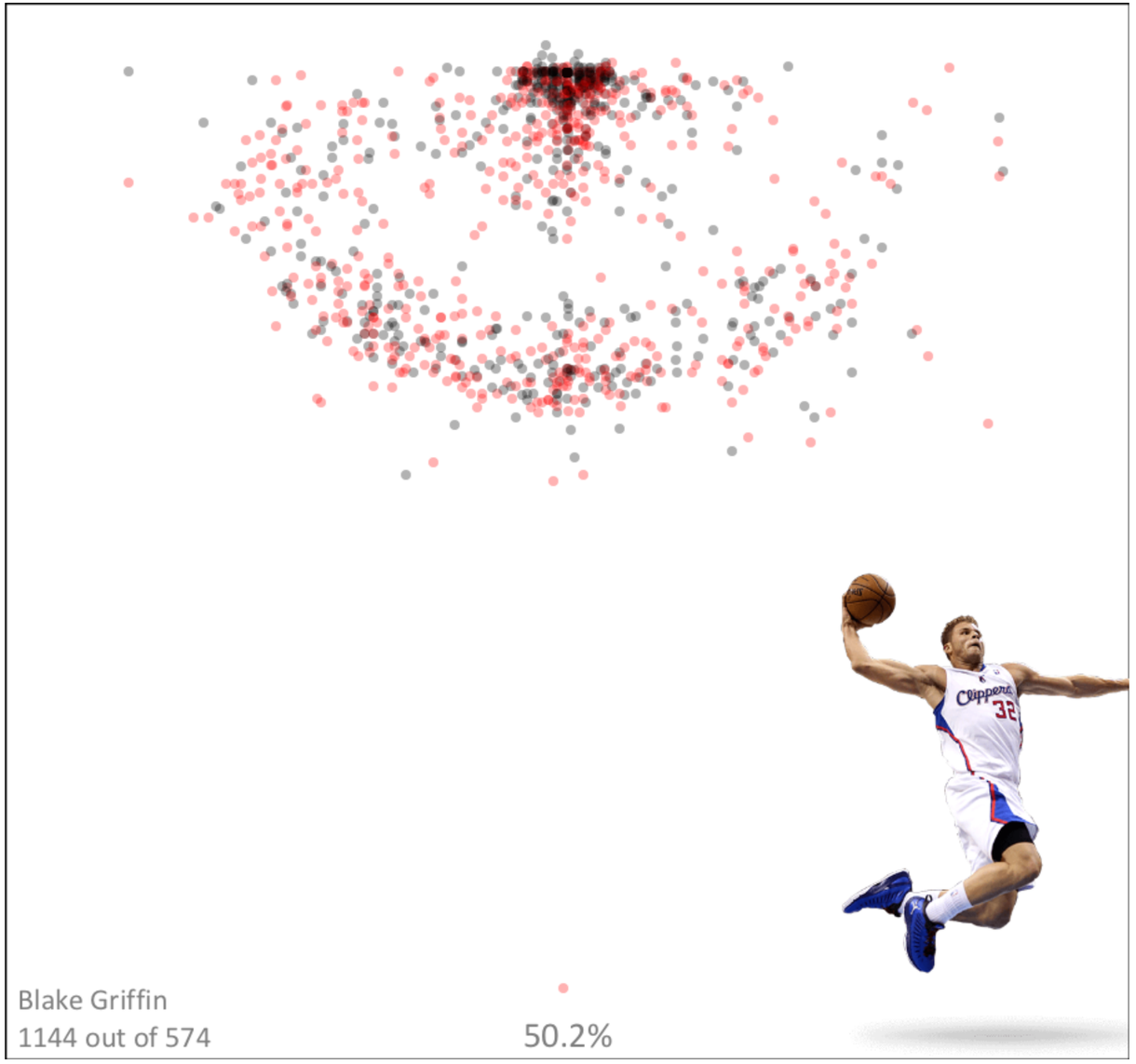
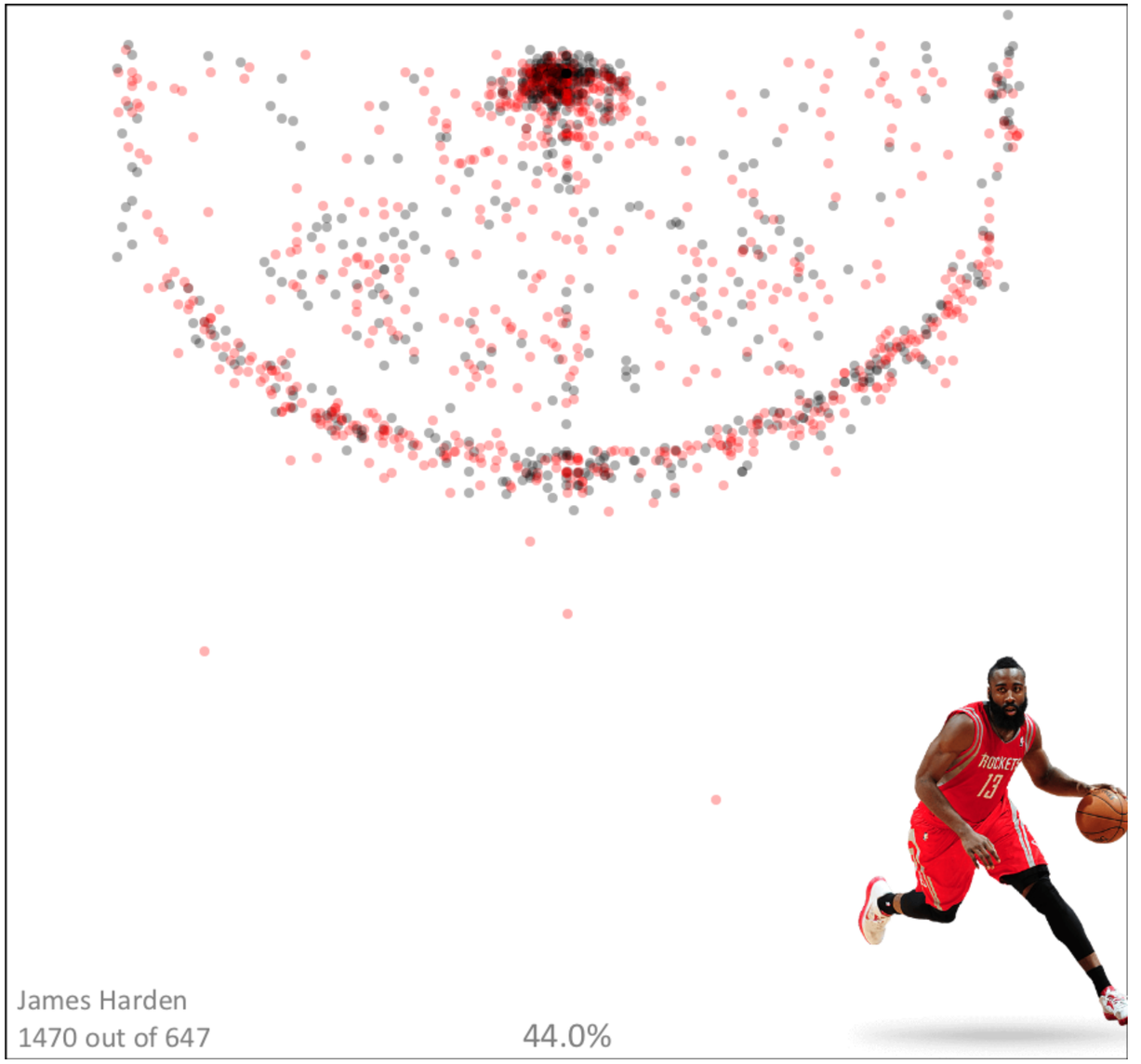
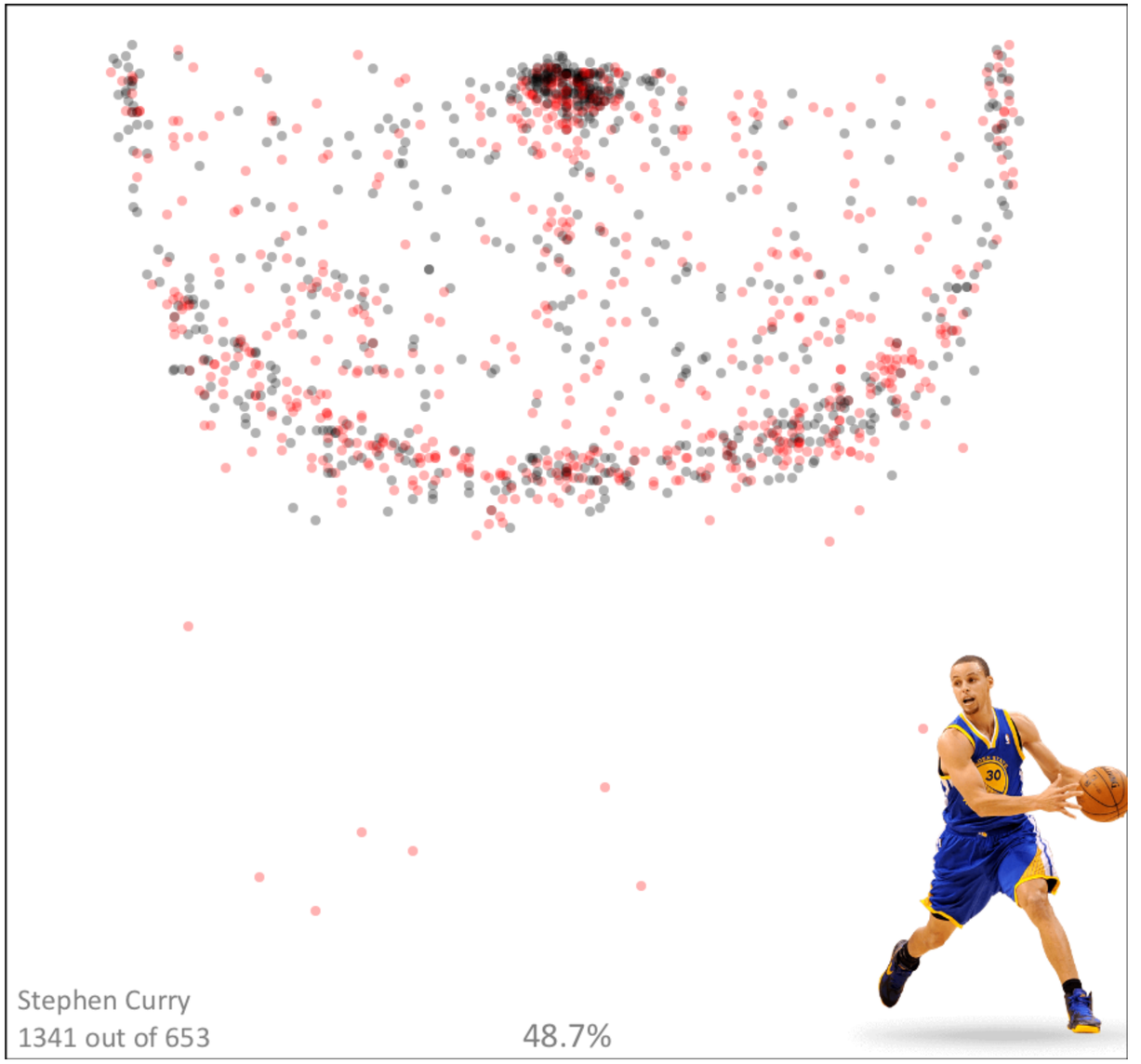
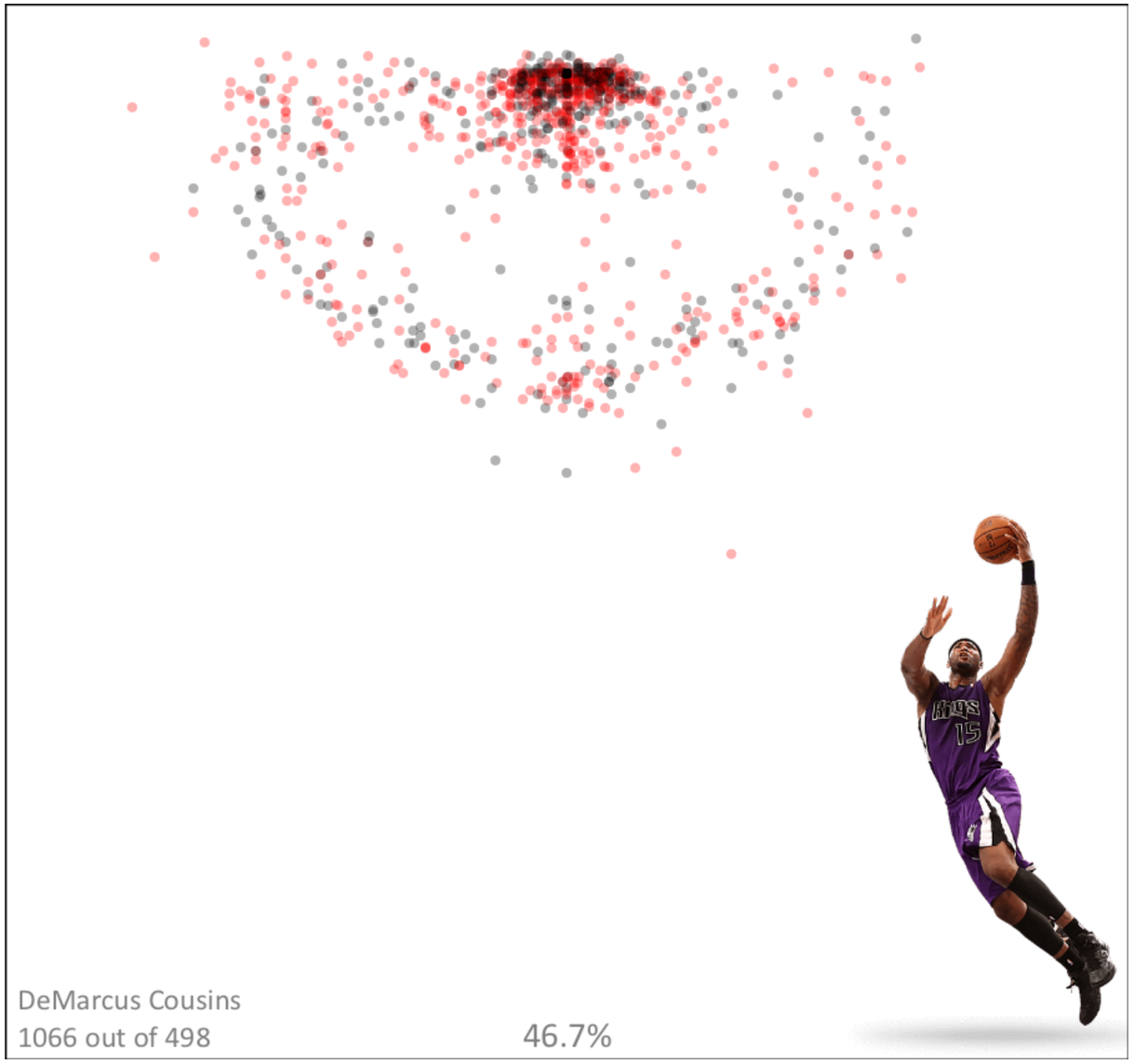
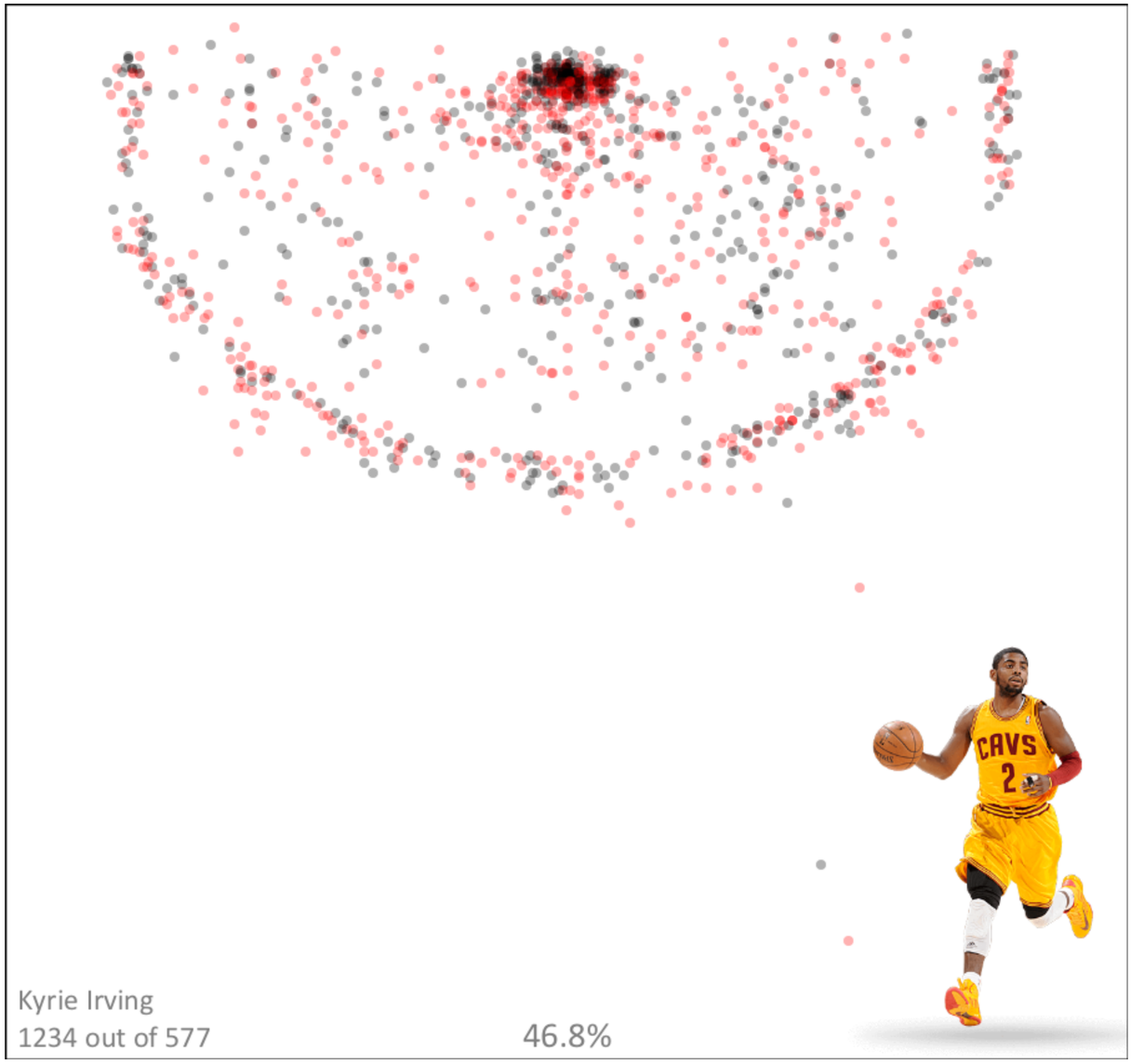

Russell Westbrook
1471 out of 627
42.6%

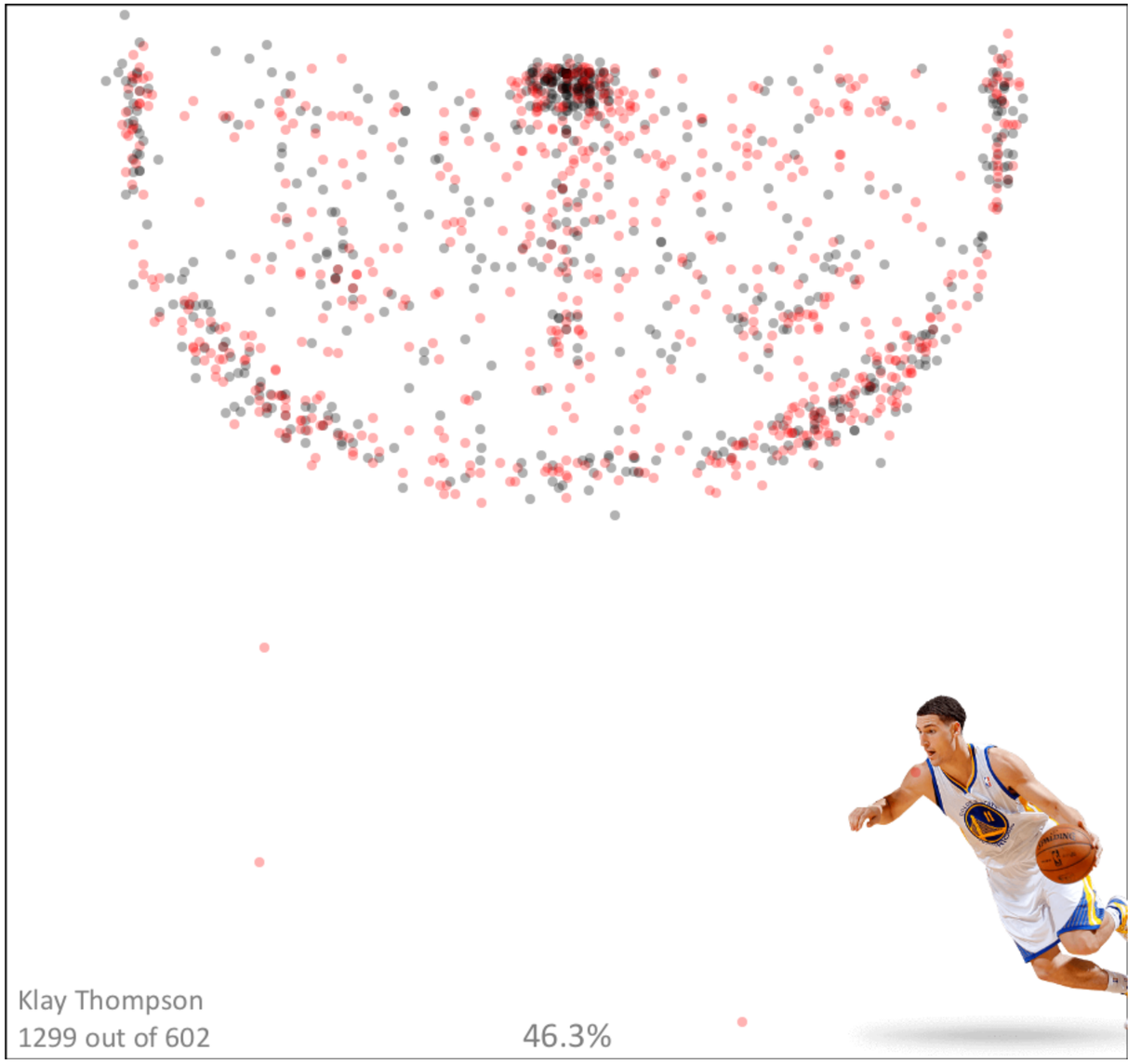

Blake Griffin
1144 out of 574
50.2%

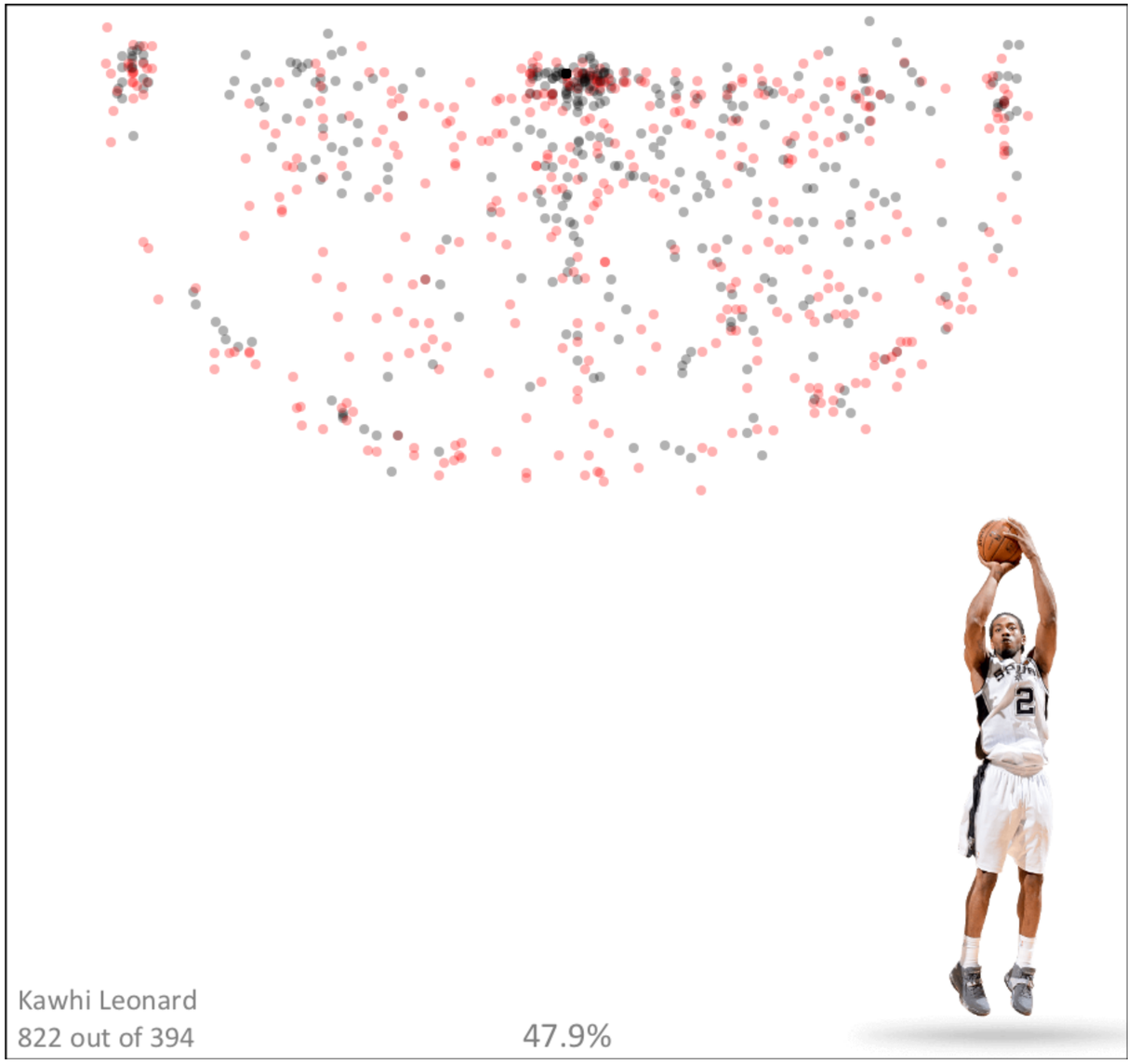

James Harden
1470 out of 647
44.0%

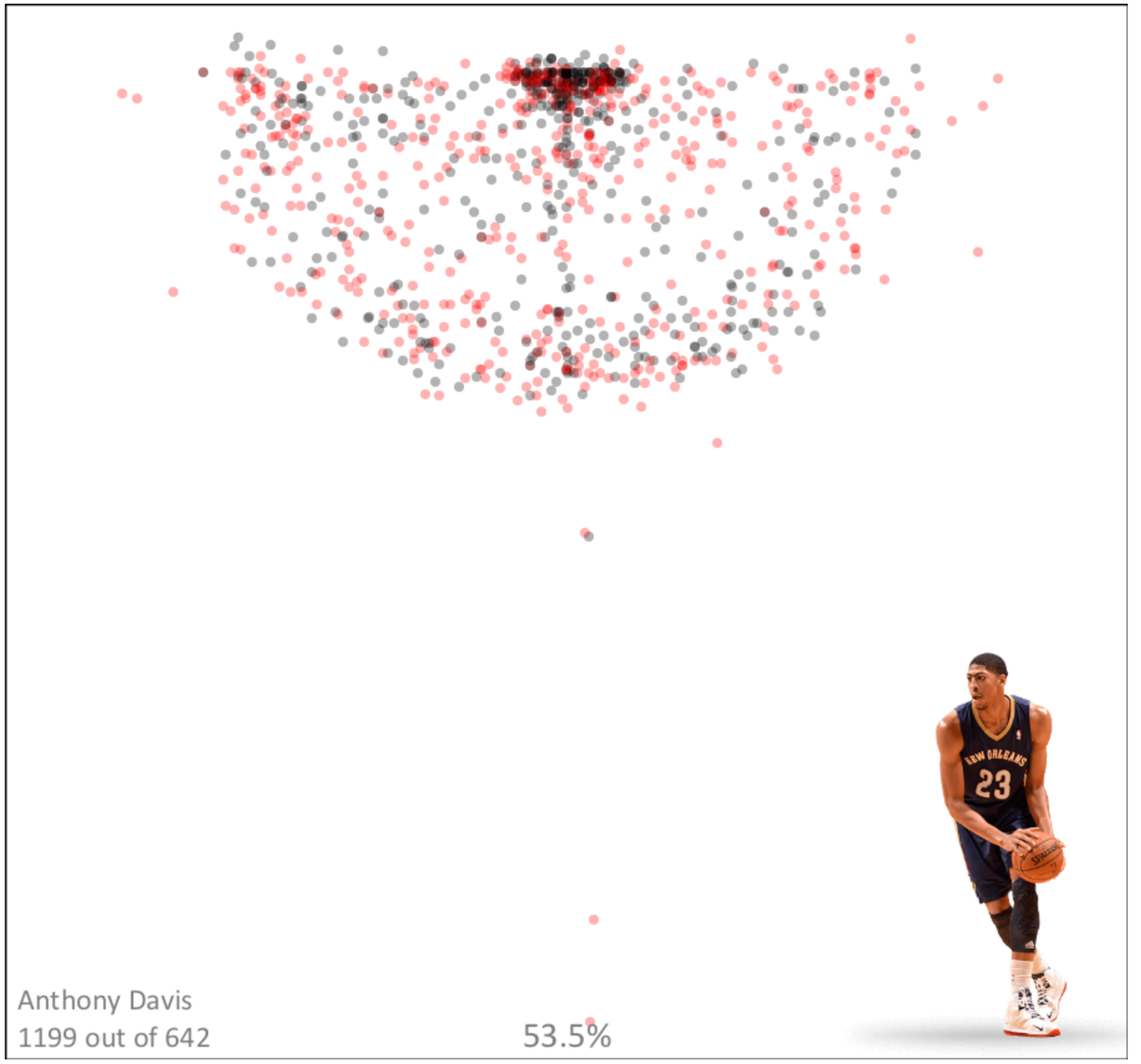

Stephen Curry
1341 out of 653
48.7%

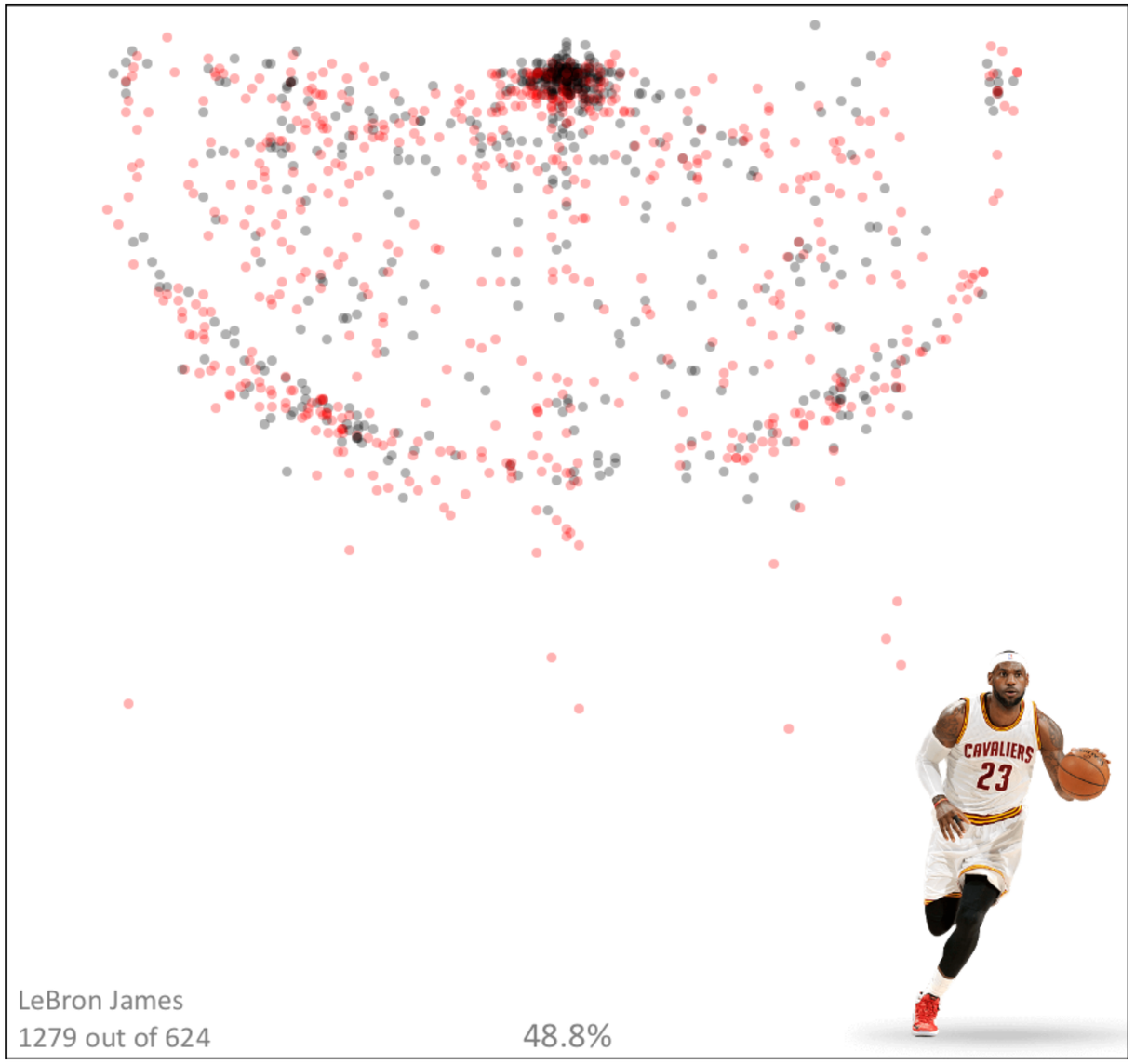

DeMarcus Cousins
1066 out of 498
46.7%

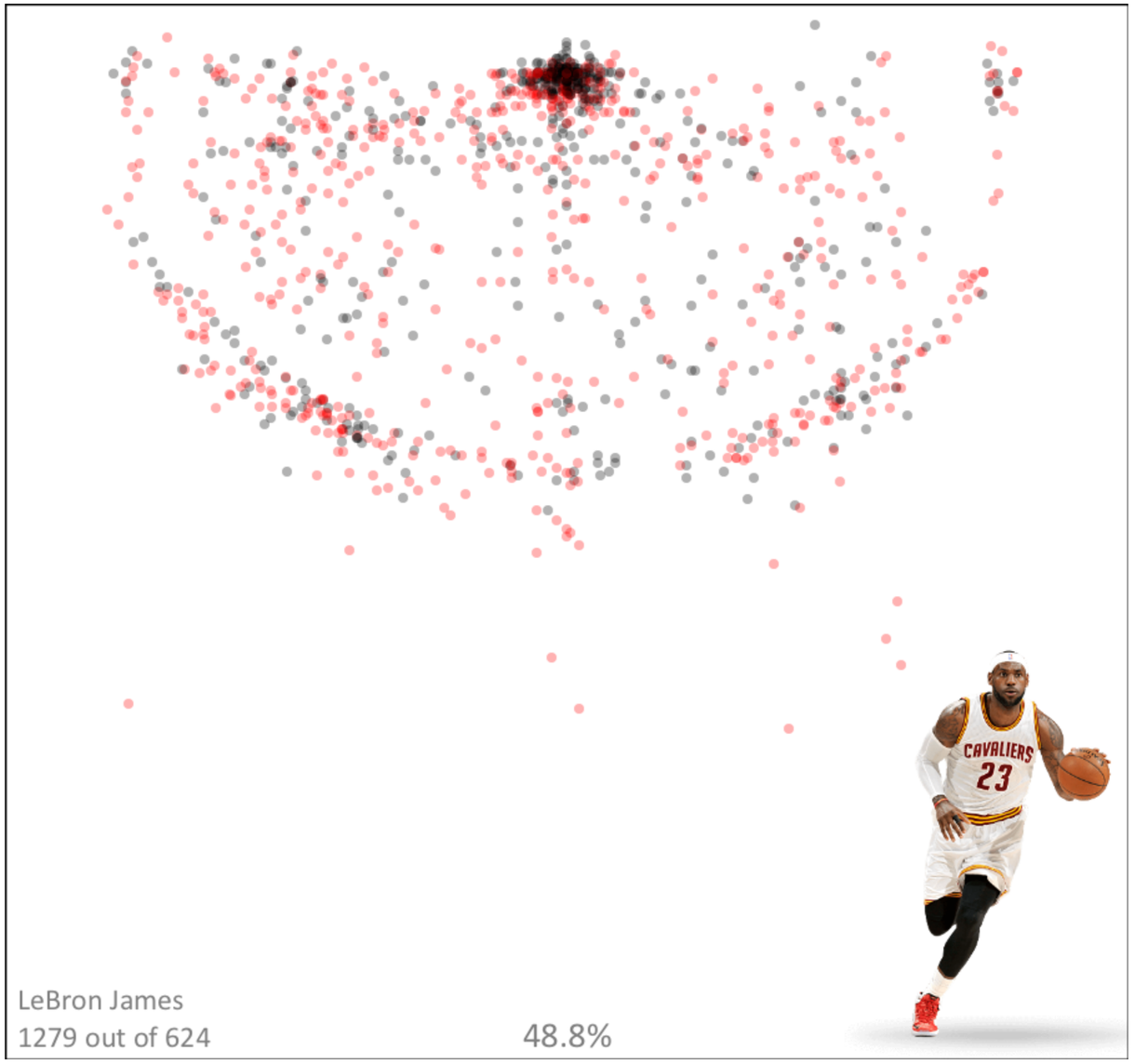

CAVS
2
Kyrie Irving
1234 out of 577
46.8%


Klay Thompson
1299 out of 602
46.3%


Kawhi Leonard
822 out of 394
47.9%

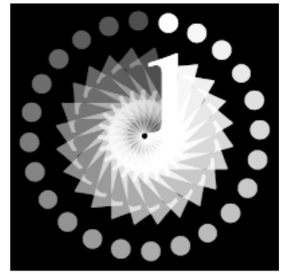

Anthony Davis
1199 out of 642
53.5%


CAVALIERS
23
LeBron James
1279 out of 624
48.8%

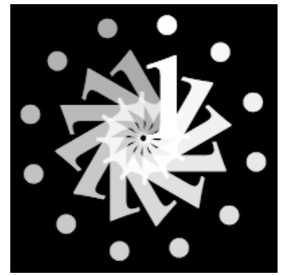

CAVALIERS
23
LeBron James
1279 out of 624
48.8%

```
package main

import (
    "os"
    "github.com/ajstarks/svgo"
)

func main() {

    width := 200
    height := 200
    a := 1.0
    ai := 0.03
    ti := 15.0

    canvas := svg.New(os.Stdout)
    canvas.Start(width, height)
    canvas.Rect(0, 0, width, height)
    canvas.Gstyle("font-family:serif;font-size:100pt")

    for t := 0.0; t <= 360.0; t += ti {
        canvas.TranslateRotate(width/2, height/2, t)
        canvas.Text(0, 0, "i", canvas.RGBA(255, 255, 255, a))
        canvas.Gend()
        a -= ai
    }
    canvas.Gend()
    canvas.End()
}
```

ti = 15



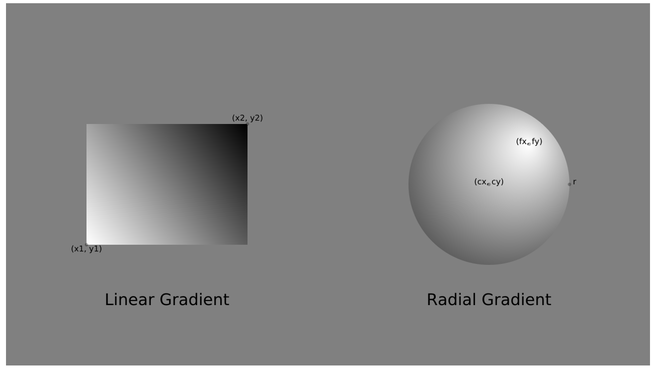
ti = 30

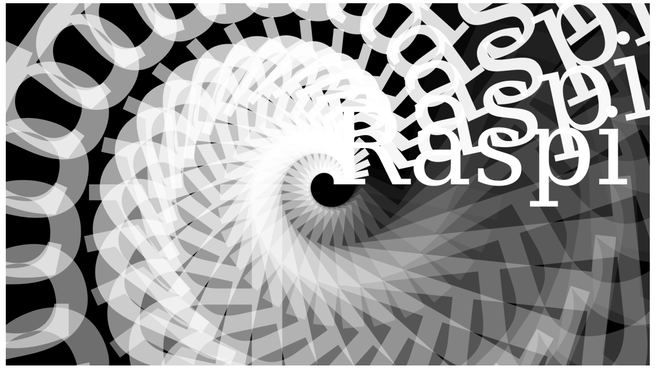


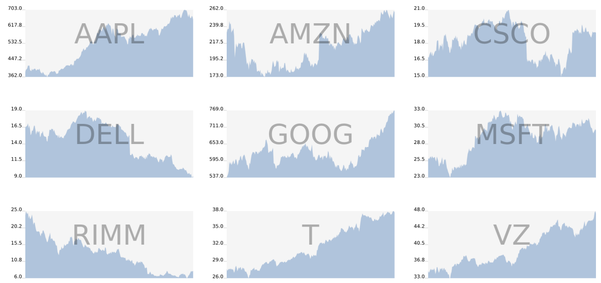
ti = 45

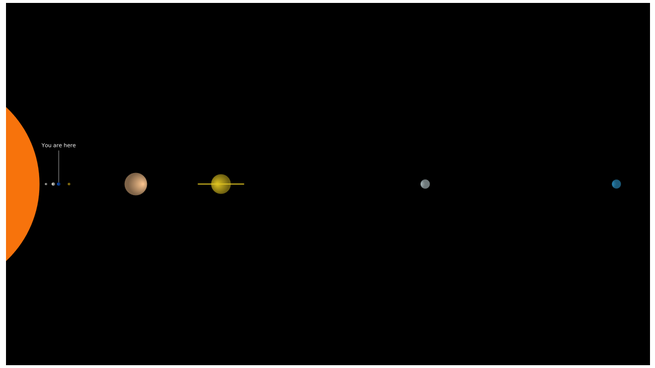
- Circle
- Ellipse
- Rectangle
- Rounded Rectangle
- Line
- Polyline
- Polygon
- Arc
- Quadratic Bezier
- Cubic Bezier
- Image

OpenVG on the Raspberry Pi









Why I use Go

Anthony Starks

@ajstarks
ajstarks@gmail.com

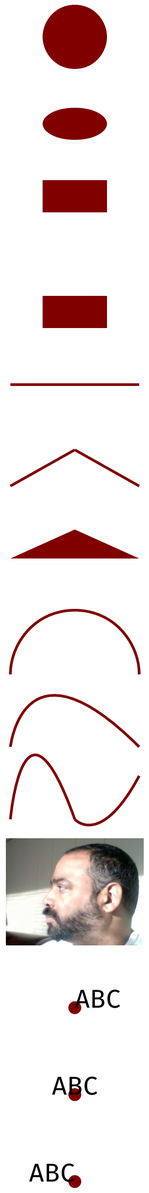
openvg

```
package main
import "fmt"

func main() {
    fmt.Println("hello, world")
}
```

This is the traditional hello, world program.
It's six lines long, and imports the fmt package,
leading some to be suprised at the size of the resulting binary.

```
package main

import (
    "bufio"
    "github.com/ajstarks/openvg"
    "os"
)

func main() {
    width, height := openvg.Init()

    w2 := openvg.VGfloat(width / 2)
    h2 := openvg.VGfloat(height / 2)
    w := openvg.VGfloat(width)

    openvg.Start(width, height)                // Start the picture
    openvg.BackgroundColor("black")            // Black background
    openvg.FillRGB(44, 100, 232, 1)            // Big blue marble
    openvg.Circle(w2, 0, w)                    // The "world"
    openvg.FillColor("white")                  // White text
    openvg.TextMid(w2, h2, "hello, world", "serif", width/10) // Greetings
    openvg.End()                               // End the picture
    bufio.NewReader(os.Stdin).ReadBytes('\n') // Pause until [RETURN]
    openvg.Finish()                            // Graphics cleanup
}
```

Openvg Functions



Circle	(x, y, r VGfloat)
Ellipse	(x, y, w, h VGfloat)
Rect	(x, y, w, h VGfloat)
Roundrect	(x, y, w, h, rw, rh VGfloat)
Line	(x1, y1, x2, y2 VGfloat)
Polyline	(x, y []VGfloat)
Polygon	(x, y []VGfloat)
Arc	(x, y, w, h, sa, aext VGfloat)
Qbezier	(sx, sy, cx, cy, ex, ey VGfloat)
Cbezier	(sx, sy, cx, cy, px, py, ex, ey VGfloat)
Image	(x, y VGfloat, w, h int, s string)
Text	(x, y VGfloat, s string, font string, size int)
TextMid	(x, y VGfloat, s string, font string, size int)
TextEnd	(x, y VGfloat, s string, font string, size int)

Deck

a Go package for presentations

Start the deck

Set the canvas size

Begin a slide

Place an image

Draw some text

Make a bullet list

End the list

Draw a line

Draw a rectangle

Draw an ellipse

Draw an arc

Draw a quadratic bezier

Draw a polygon

End the slide

End of the deck

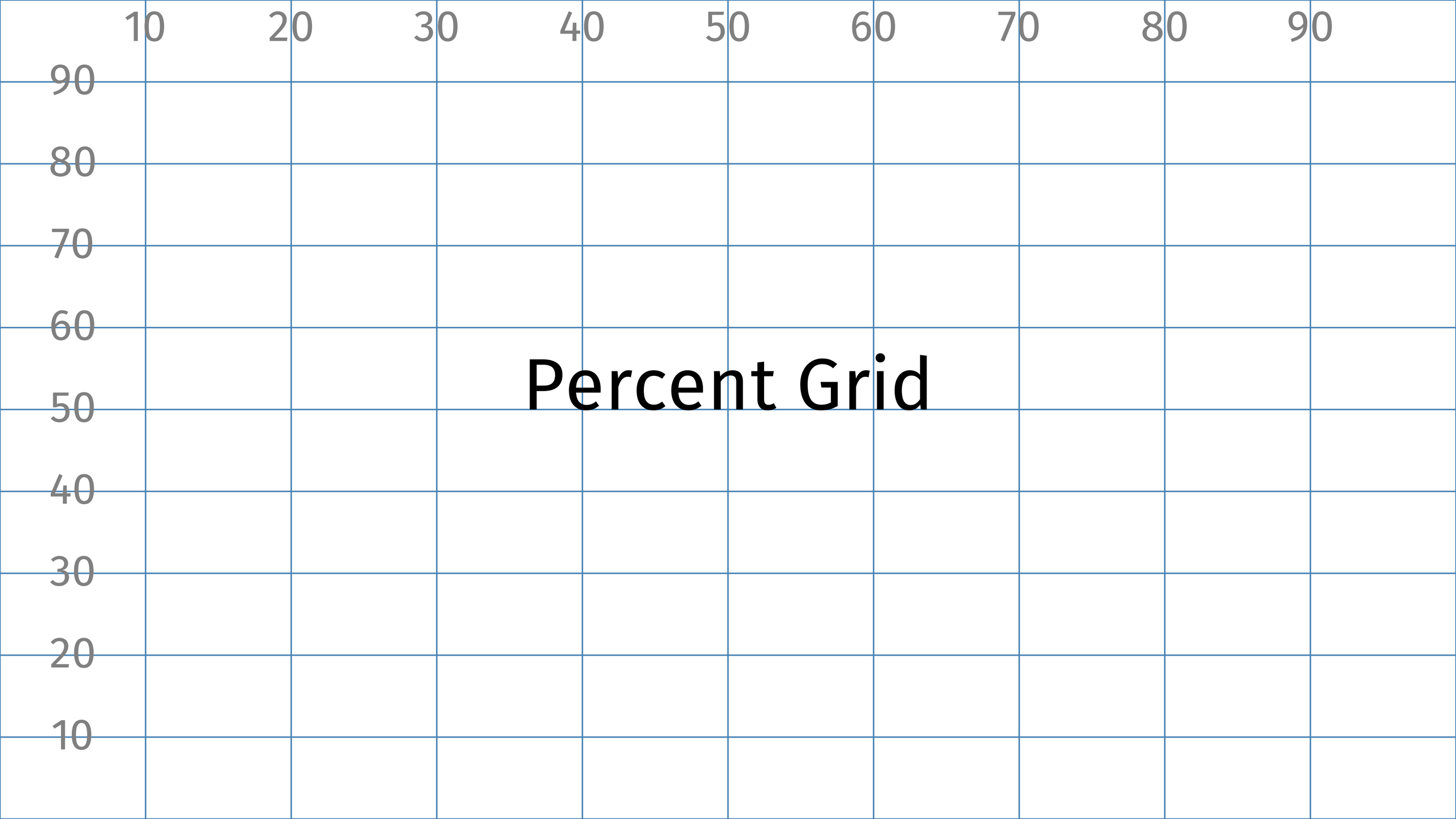
```
<deck>
  <canvas width="1024" height="768" />
  <slide bg="white" fg="black">
    <image xp="70" yp="60" width="640" height="480" name="follow.png" sp="1" caption="Dreams"/>
    <text  xp="20" yp="80" sp="4" link="http://goo.gl/Wm05Ex">Deck elements</text>
    <list  xp="20" yp="70" sp="3" type="bullet">
      <li>text, list, image</li>
      <li>line, rect, ellipse</li>
      <li>arc, curve, polygon</li>
    </list>
    <line    xp1="20" yp1="10" xp2="30" yp2="10"/>
    <rect    xp="35"  yp="10" wp="4" hr="75" color="rgb(127,0,0)"/>
    <ellipse xp="45"  yp="10" wp="4" hr="75" color="rgb(0,127,0)"/>
    <arc     xp="55"  yp="10" wp="4" hp="3" a1="0" a2="180" color="rgb(0,0,127)"/>
    <curve   xp1="60" yp1="10" xp2="75" yp2="20" xp3="70" yp3="10" />
    <polygon xc=75 75 80" yc="8 12 10" color="rgb(0,0,127)"/>
  </slide>
</deck>
```

Anatomy of a Deck

Deck elements

- text, list, image
- line, rect, ellipse
- arc, curve, polygon

Dreams


10
20
30
40
50
60
70
80
90
90
80
70
60
50
40
30
20
10
Percent Grid

10%, 50%

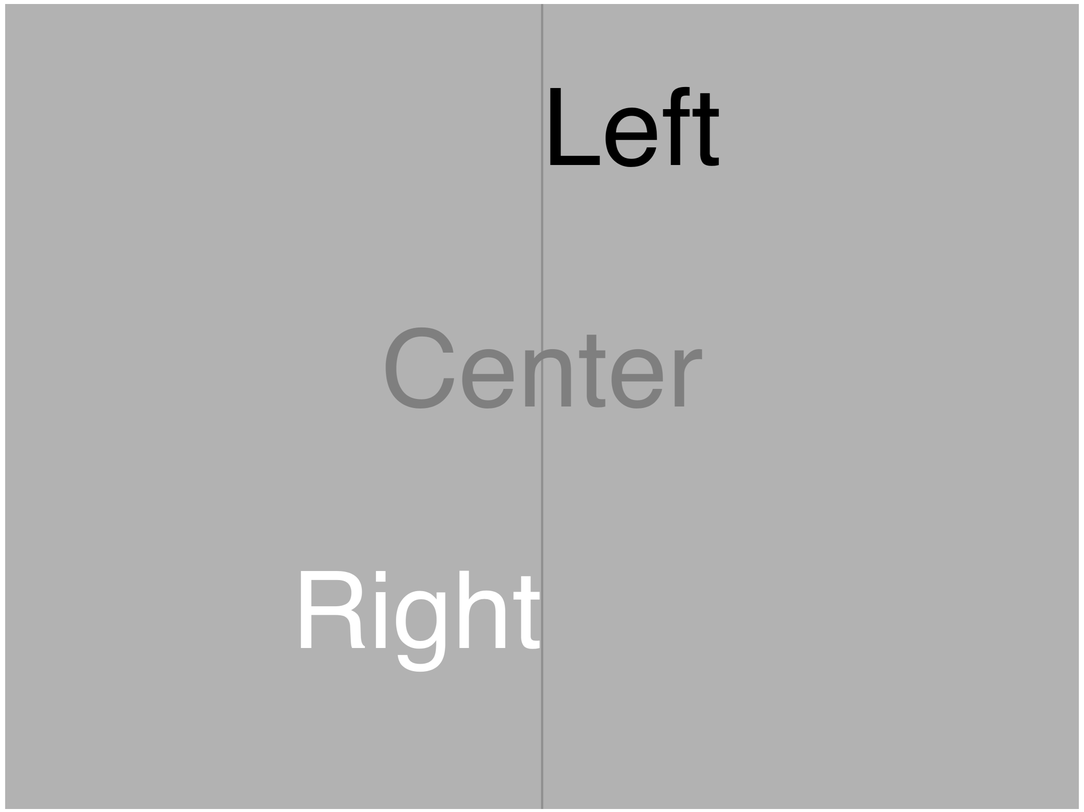
Hello

50%, 50%

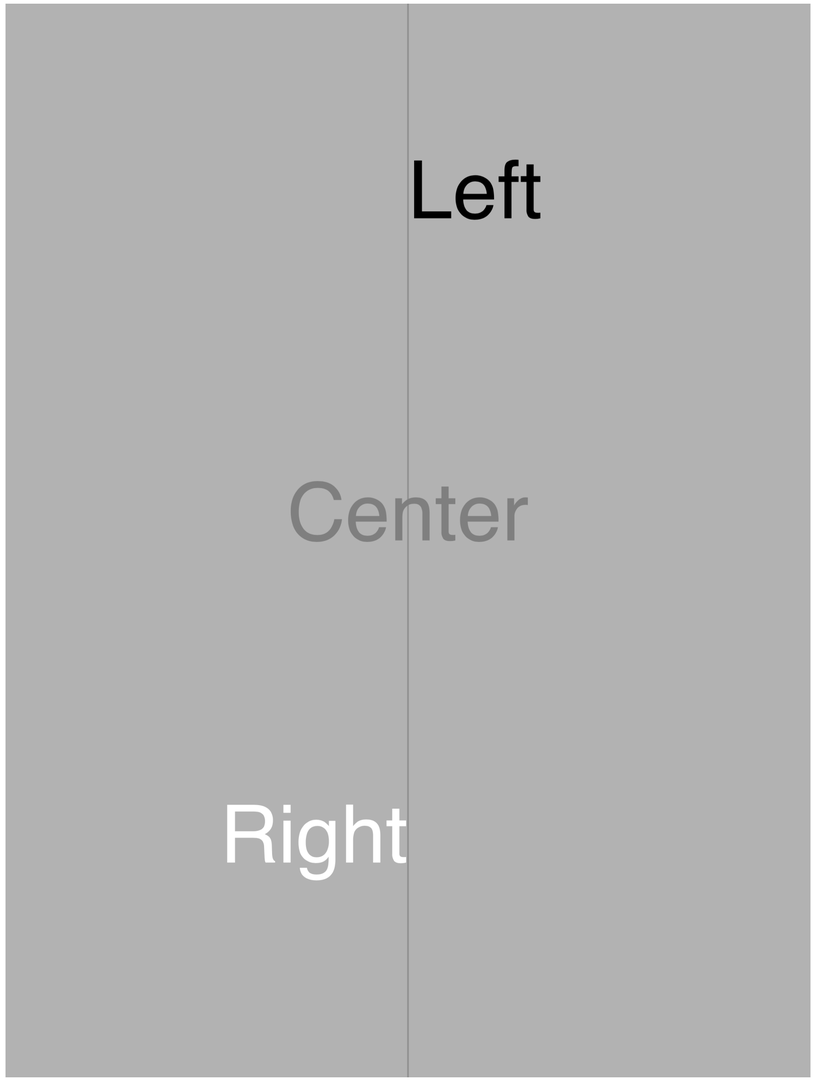
90%, 50%

Percentage-based layout

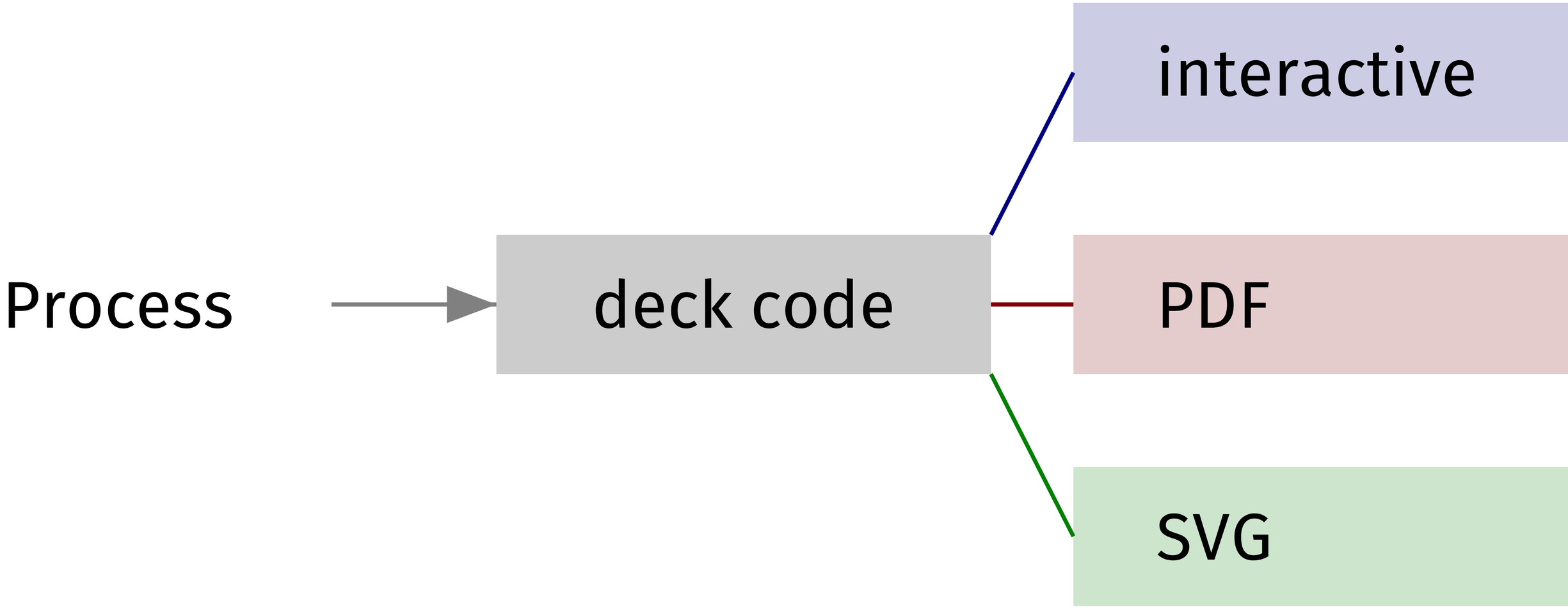
Scaling the canvas



Landscape



Portrait


Process
deck code
interactive
PDF
SVG

NewSlides (where io.Writer, w, h int)

StartDeck()/EndDeck()

StartSlide (colors ...string) EndSlide()

Arc (x, y, w, h, size, a1, a2 float64, color string, opacity ...float64)

Circle (x, y, w float64, color string, opacity ...float64)

Code (x, y float64, s string, size, margin float64, color string, opacity ...float64)

Curve (x1, y1, x2, y2, x3, y3, size float64, color string, opacity ...float64)

Ellipse (x, y, w, h float64, color string, opacity ...float64)

Image (x, y float64, w, h int, name string)

Line (x1, y1, x2, y2, size float64, color string, opacity ...float64)

List (x, y, size float64, items []string, ltype, font, color string)

Polygon (x, y []float64, color string, opacity ...float64)

Rect (x, y, w, h float64, color string, opacity ...float64)

Square (x, y, w float64, color string, opacity ...float64)

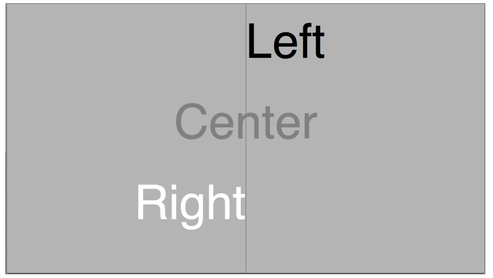
Text (x, y float64, s, font string, size float64, color string, opacity ...float64)

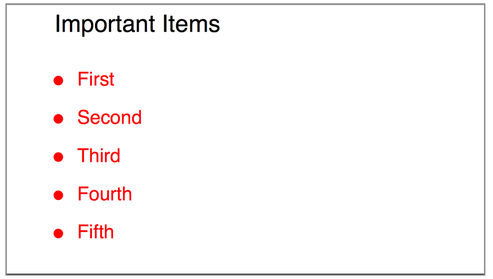
TextBlock (x, y float64, s, font string, size, margin float64, color string, opacity ...float64)

TextEnd (x, y float64, s, font string, size float64, color string, opacity ...float64)

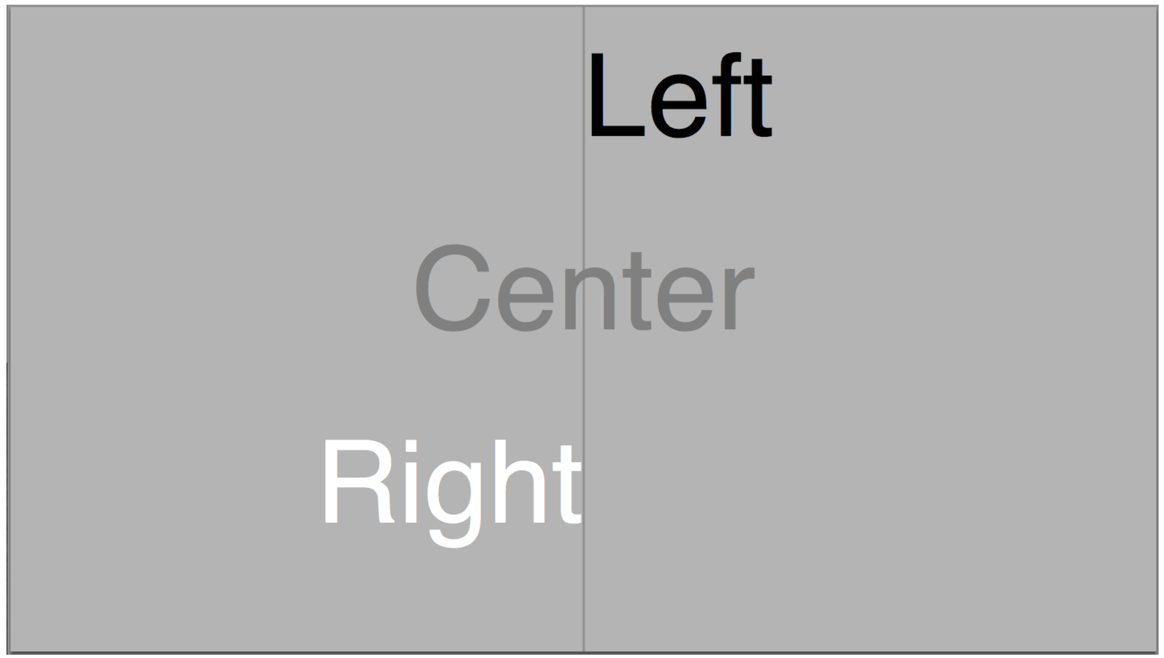
TextMid (x, y float64, s, font string, size float64, color string, opacity ...float64)

```
package main

import (
    "github.com/ajstarks/deck/generate"
    "os"
)

func main() {
    deck := generate.NewSlides(os.Stdout, 1600, 900) // 16x9 deck to standard output
    deck.StartDeck()                                 // start the deck

    // Text alignment
    deck.StartSlide("rgb(180,180,180)")
    deck.Text(50, 80, "Left", "sans", 10, "black")
    deck.TextMid(50, 50, "Center", "sans", 10, "gray")
    deck.TextEnd(50, 20, "Right", "sans", 10, "white")
    deck.Line(50, 100, 50, 0, 0.2, "black", 20)
    deck.EndSlide()

    // List
    items := []string{"First", "Second",
                      "Third", "Fourth", "Fifth"}
    deck.StartSlide()
    deck.Text(10, 90, "Important Items", "sans", 5, "")
    deck.List(10, 70, 4, items, "bullet", "sans", "red")
    deck.EndSlide()

    // Picture with text annotation
    quote := "Yours is some tepid, off-brand, generic ‘cola’. " +
             "What I’m making is “Classic Coke”"
    person := "Heisenberg"
    deck.StartSlide("black", "white")
    deck.Image(50, 50, 1440, 900, "classic-coke.png")
    deck.TextBlock(10, 80, quote, "sans", 2.5, 30, "")
    deck.Text(65, 15, person, "sans", 1.2, "")
    deck.EndSlide()

    deck.EndDeck() // end the deck
}
```

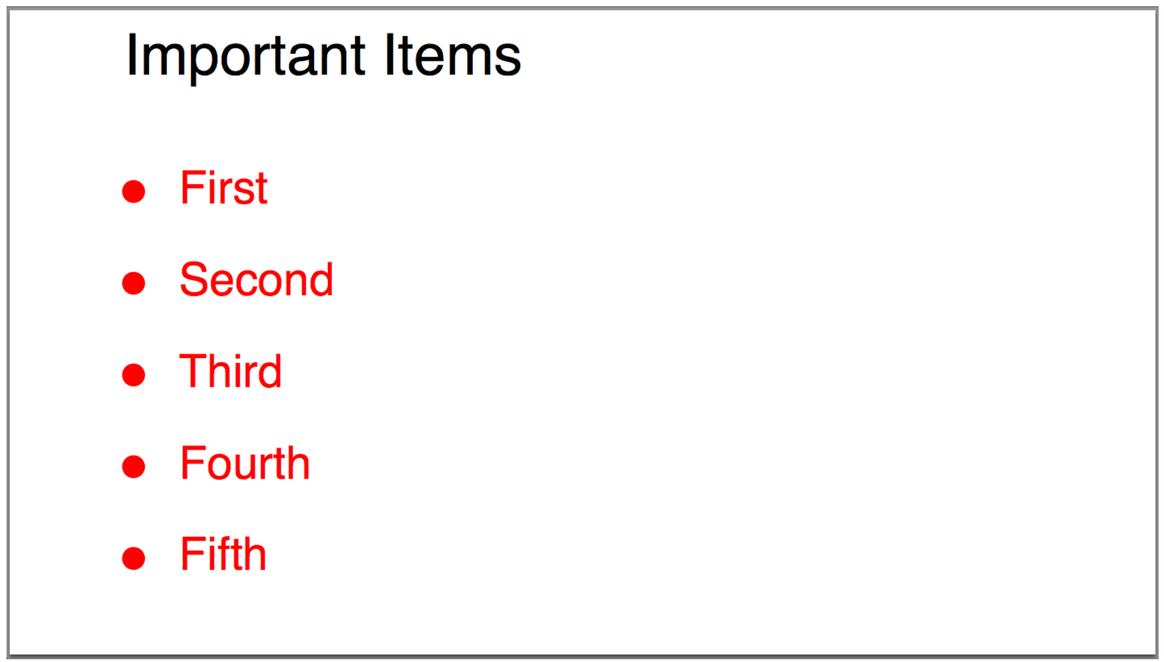




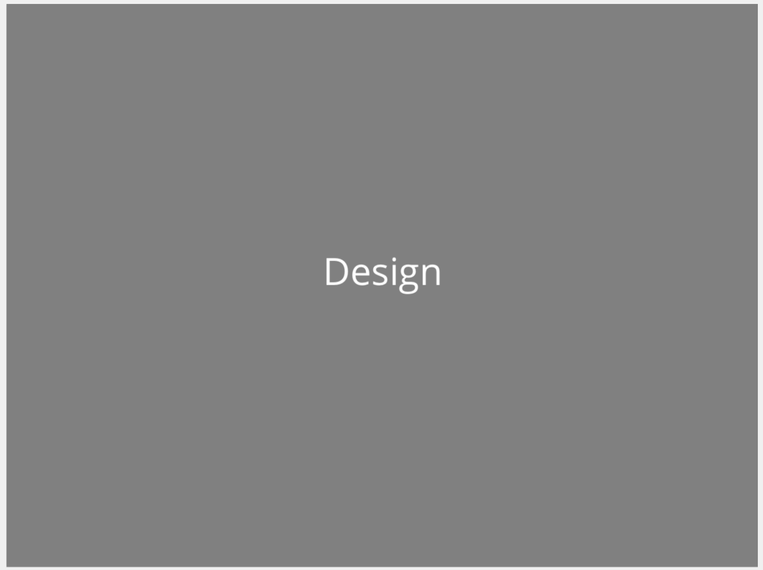
```
// Text alignment
deck.StartSlide("rgb(180,180,180)")
deck.Text(50, 80, "Left", "sans", 10, "black")
deck.TextMid(50, 50, "Center", "sans", 10, "gray")
deck.TextEnd(50, 20, "Right", "sans", 10, "white")
deck.Line(50, 100, 50, 0, 0.2, "black", 20)
deck.EndSlide()
```

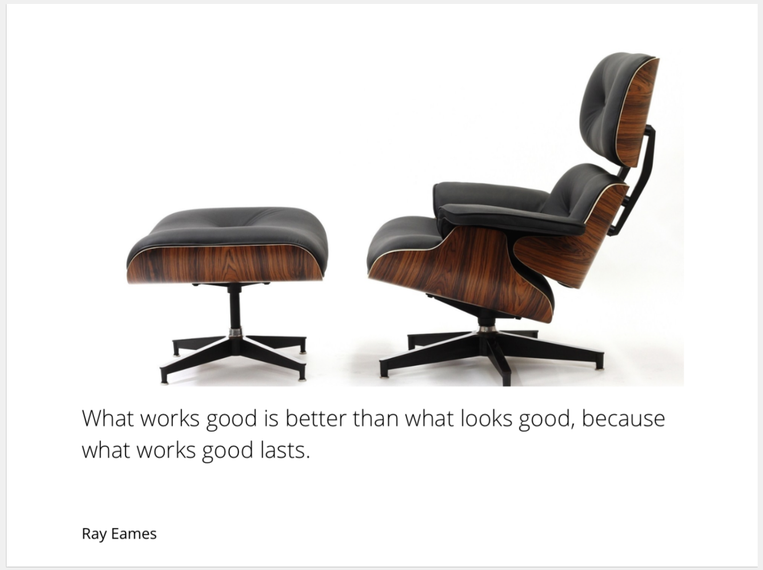


```
// List
items := []string{"First", "Second", "Third",
                  "Fourth", "Fifth"}
deck.StartSlide()
deck.Text(10, 90, "Important Items", "sans", 5, "")
deck.List(10, 70, 4, items, "bullet", "sans", "red")
deck.EndSlide()
```



```
// Picture with text annotation
quote := "Yours is some tepid, off-brand, generic ‘cola’. " +
         "What I’m making is “Classic Coke”"
person := "Heisenberg"
deck.StartSlide("black", "white")
deck.Image(50, 50, 1440, 900, "classic-coke.png")
deck.TextBlock(10, 80, quote, "sans", 2.5, 30, "")
deck.Text(65, 15, person, "sans", 1.2, "")
deck.EndSlide()
```






```
# Designing for People
title    A View of User Experience: Designing for People    Anthony Starks / ajstarks@gmail.com / @ajstarks
section    Design    gray    white
caption    eames.png    Ray Eames    What works good is better than what looks good, because what works good lasts.
```

```
capgen slides.txt | pdfdeck ... > slides.pdf
```

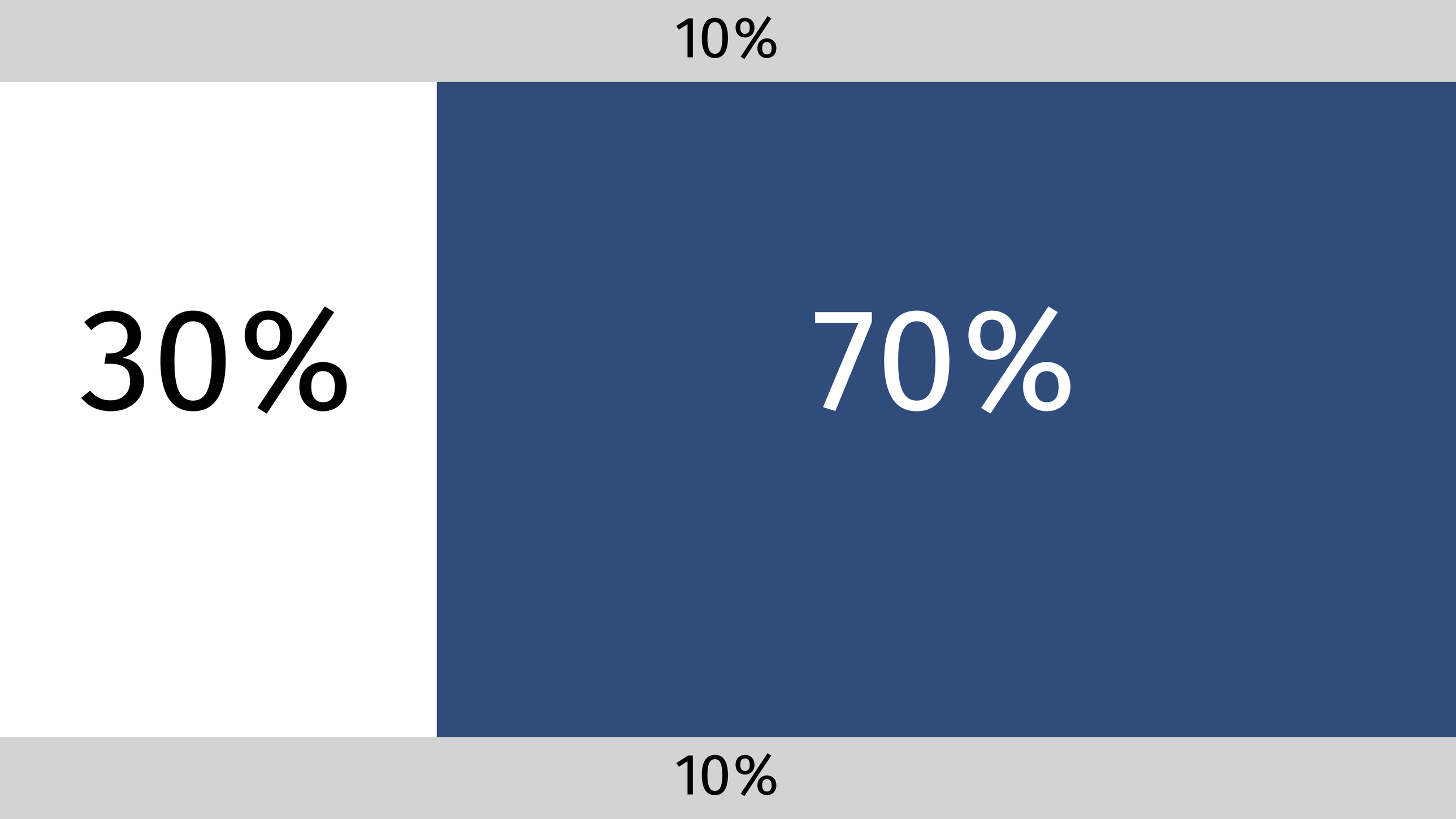
Design Examples

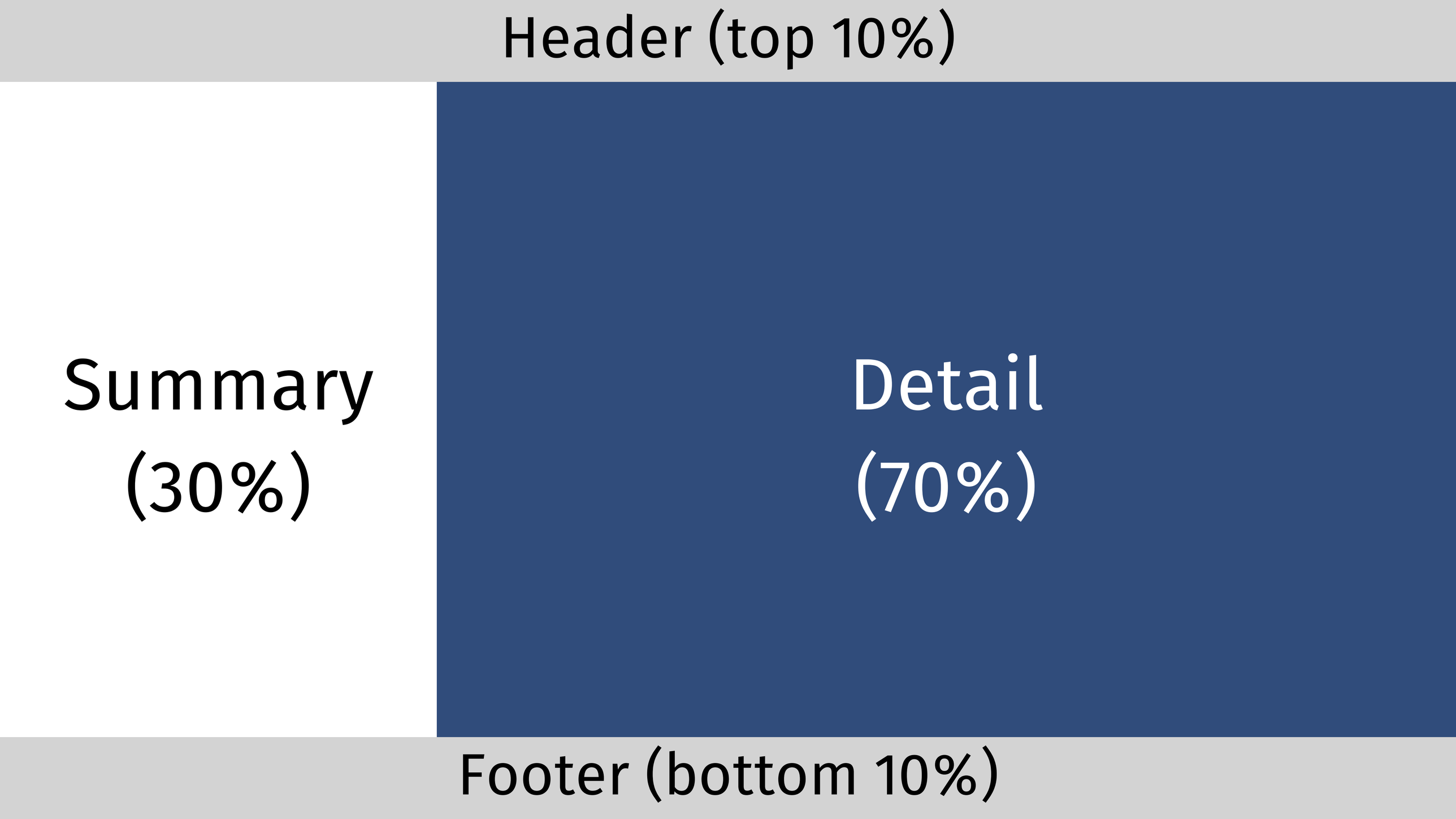
Top

Left

Right

Bottom


10%
30%
70%
10%


Header (top 10%)
Summary
(30%)
Detail
(70%)
Footer (bottom 10%)

My Story

Section

One

Two

Three

Four

Five

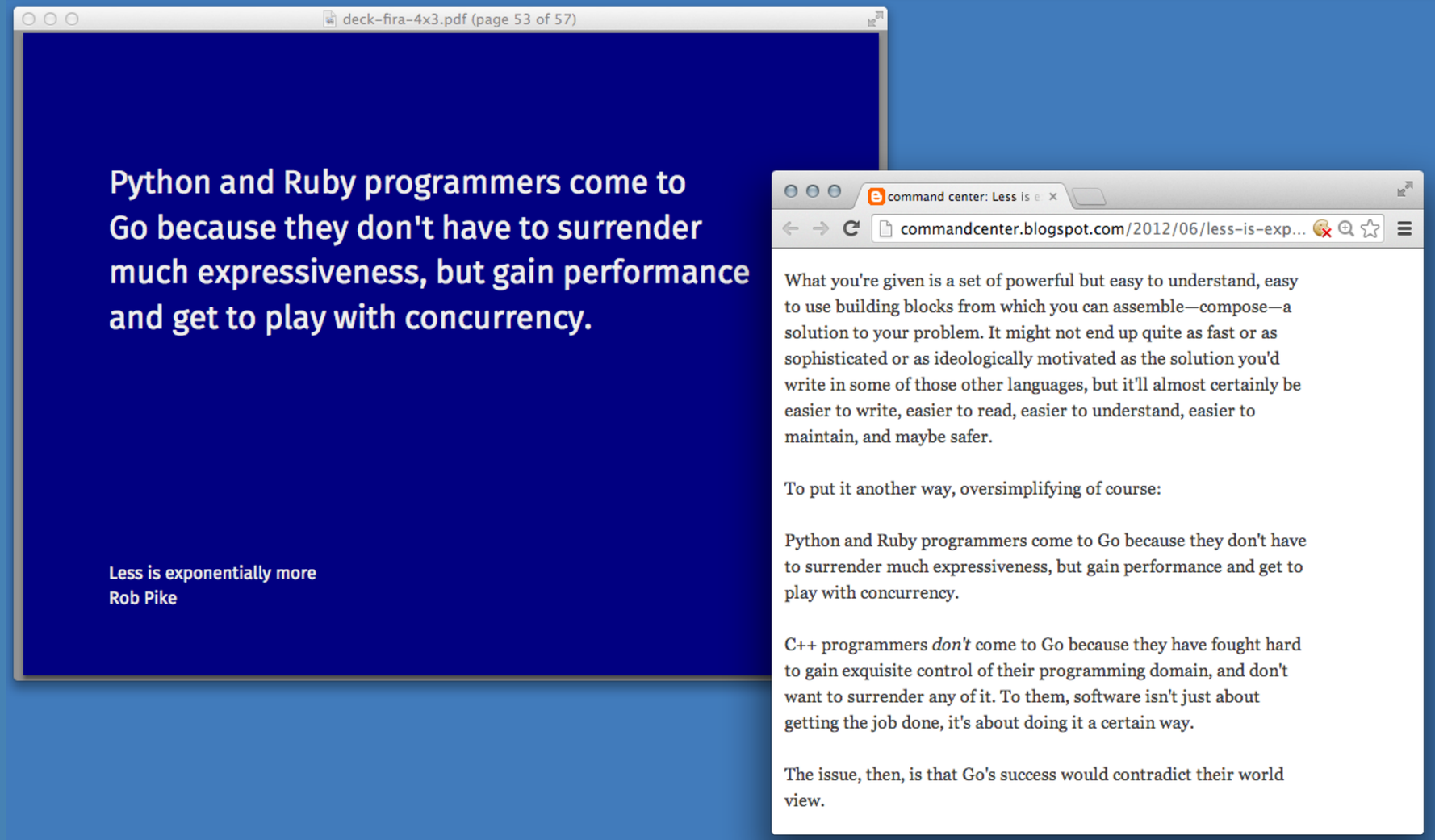
Six

A. Person, November 2015

Document Links

Add web and mailto links with the link attribute of the text element.

Once rendered as a PDF, clicking on the link opens the default browser or email client.



BOS

SFO

Virgin America 351

Gate B38

8:35am

On Time

JFK

IND

US Airways 1207

Gate C31C

5:35pm

Delayed

AAPL	110.22	+0.97 (0.89%)
AMZN	294.74	+3.33 (1.14%)
FB	76.45	-0.27 (0.35%)
GOOG	496.18	+3.63 (0.74%)
MSFT	46.35	-0.24 (0.53%)

Closing Price, 2015-01-13

go

build	compile packages and dependencies
clean	remove object files
doc	show documentation for package or symbol
env	print Go environment information
fix	run go tool fix on packages
fmt	run gofmt on package sources
generate	generate Go files by processing source
get	download and install packages and dependencies
install	compile and install packages and dependencies
list	list packages
run	compile and run Go program
test	test packages
tool	run specified go tool
version	print Go version
vet	run go tool vet on packages

This is not a index card

Rich

Can't buy me love

Bliss

Worse

Better

Misery

We have each other

Poor

So, the next time you're about to make a subclass, think hard and ask yourself

what would Go do

Andrew Mackenzie-Ross

FOR, LO,

the winter is past,
the rain is over and gone;
The flowers appear on the earth;
the time for the singing of birds is come,
and the voice of the turtle is heard in our land.

Song of Solomon 2:11-12

Good Design

is innovative

makes a product useful

is aesthetic

makes a product understandable

is unobtrusive

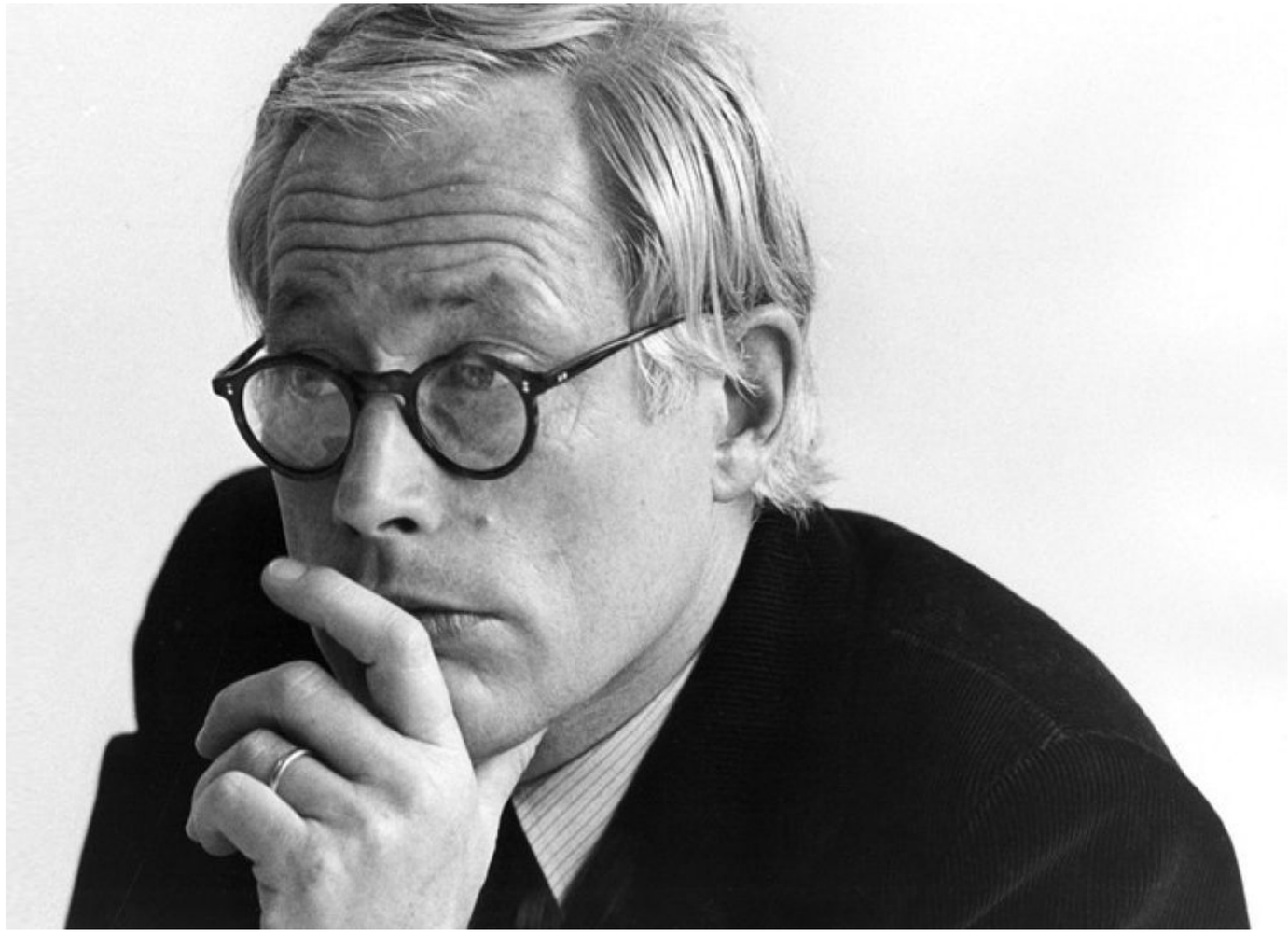
is honest

is long-lasting

is thorough down to the last detail

is environmentally-friendly

is as little design as possible



What is it about Go?

fmt

func

Writer

Reader

net/http

encoding/xml
encoding/json

cgo

The Community

Re: [go-nuts] Visualizing Random Number Generators: /dev/urandom vs. Go rand package

Inbox x

Russ Cox rsc@golang.org via google.com 3/5/10

to me

are you going to share the library or just
tease us with pictures? ;-)

Thompson wanted to create a comfortable computing environment constructed according to his own design, using whatever means were available.

Dennis M. Ritchie, “The Development of the C Language”

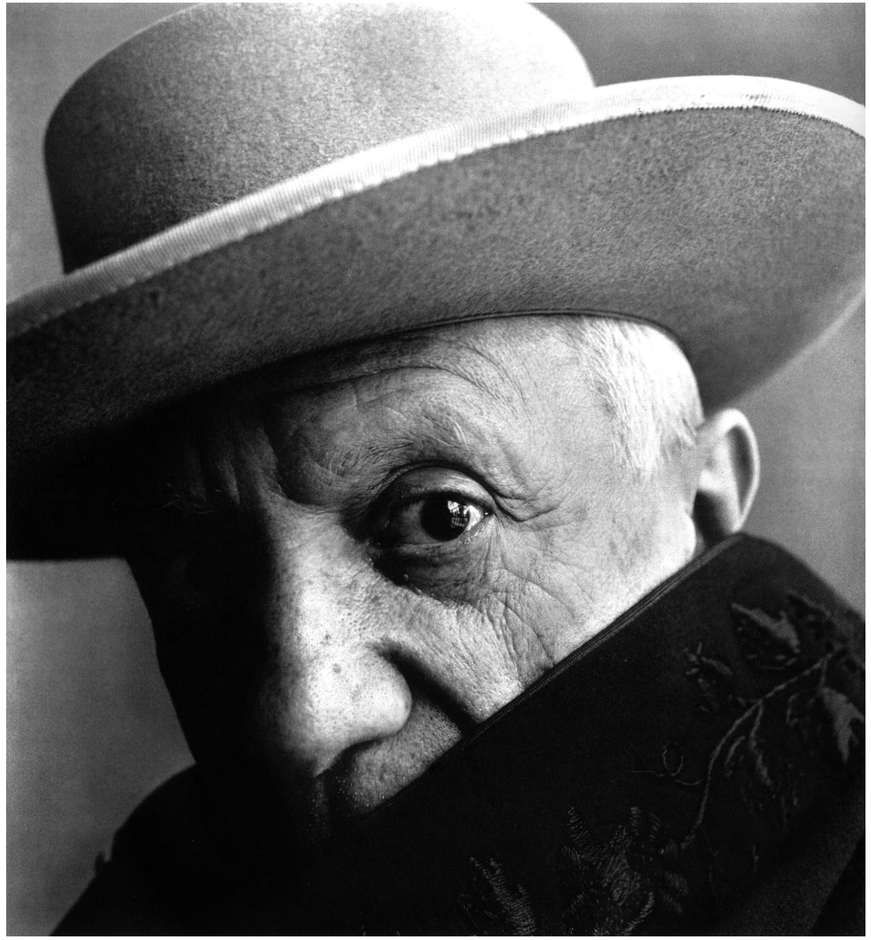
Go is not the product of a Whiggish development process. We were just trying to get something that worked for us.

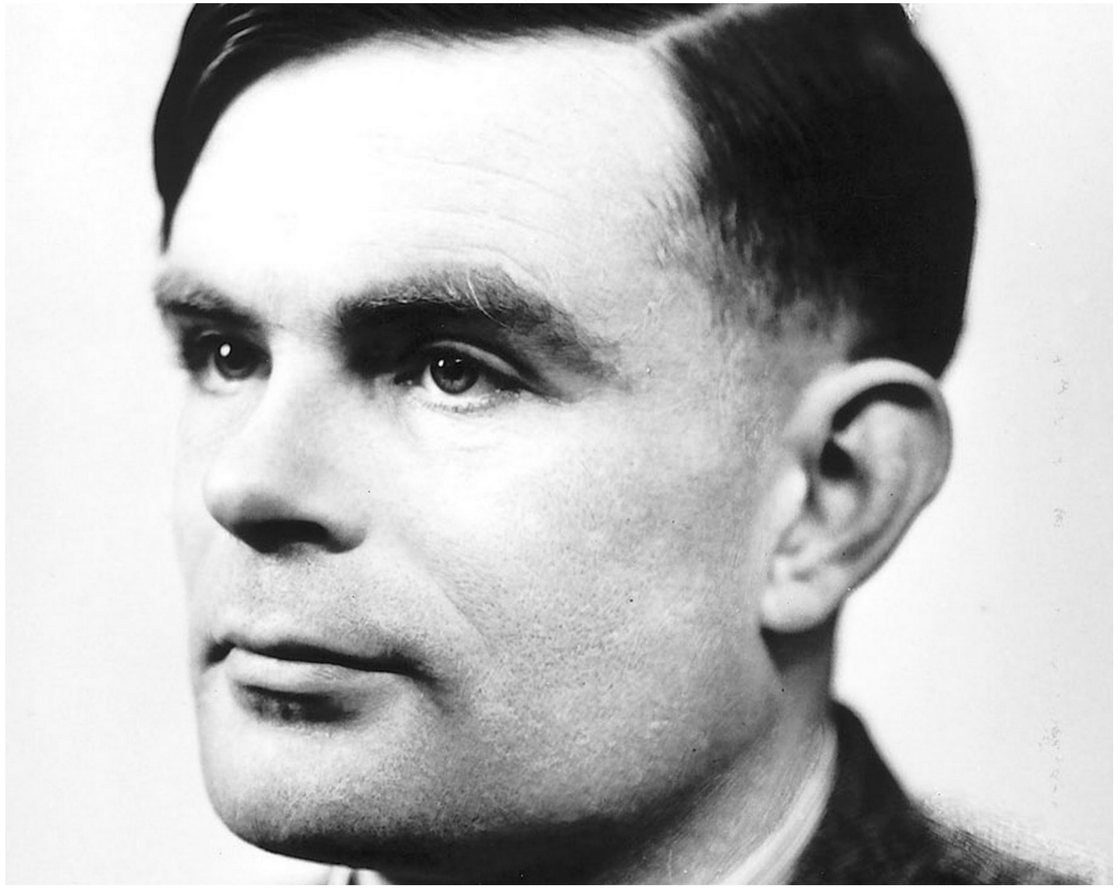
Rob Pike, “Origin of Go’s interface design”, golang-nuts

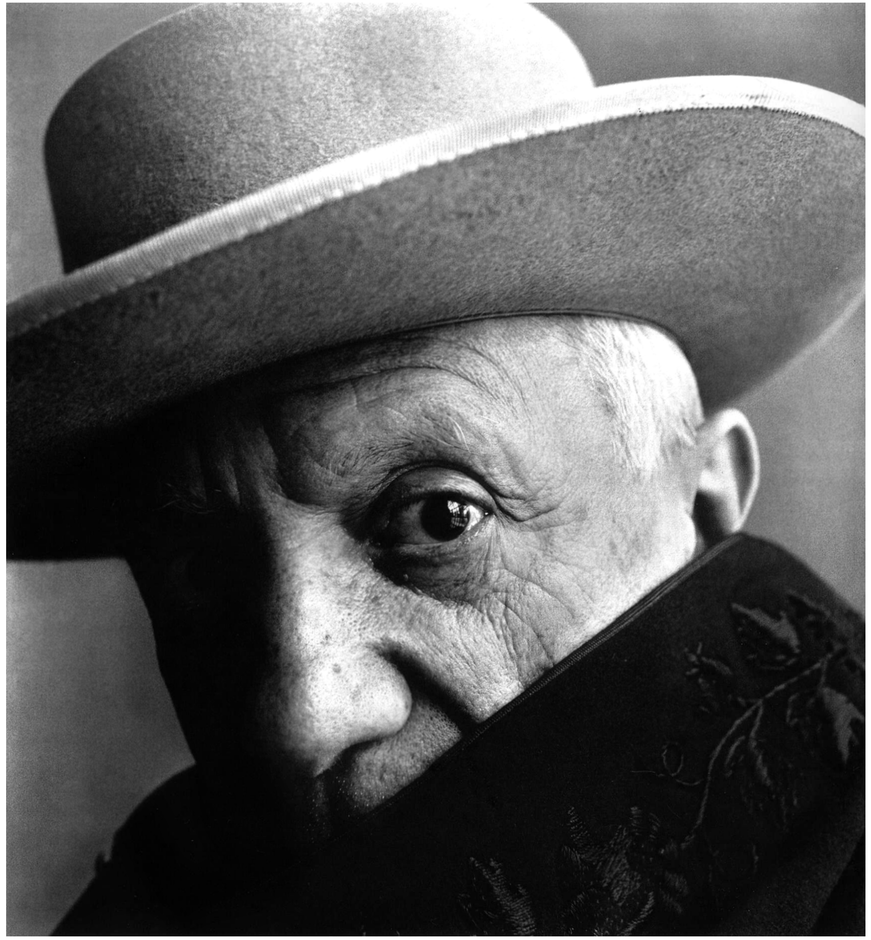
Making Tools

Fun

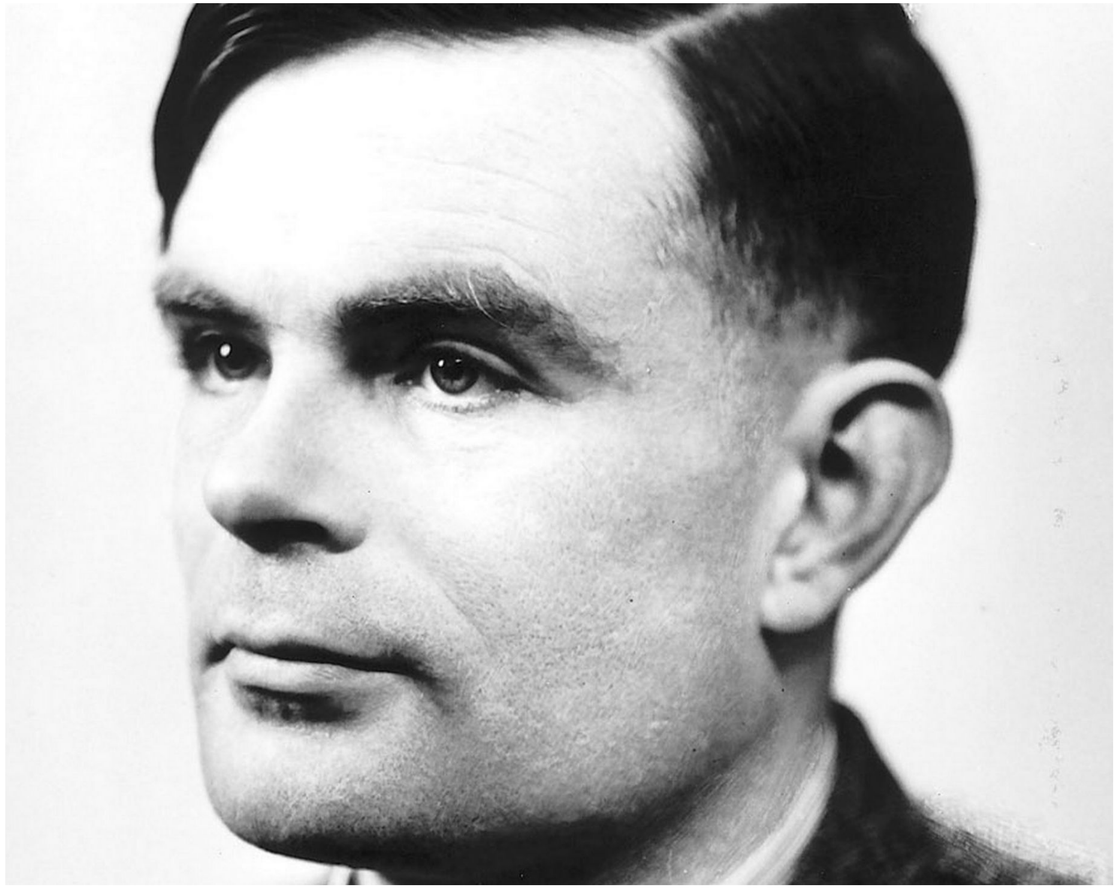
Reducing the distance from the idea to the picture







Picasso



Turing

Thank you


github.com/ajstarks


@ajstarks


ajstarks@gmail.com


flickr.com/photos/ajstarks


speakerdeck.com/ajstarks


mindchunk.blogspot.com