Telerik Sitefinity

Managing the rising tide of mobile-devices with

RESPONSIVE DESIGN

telerik

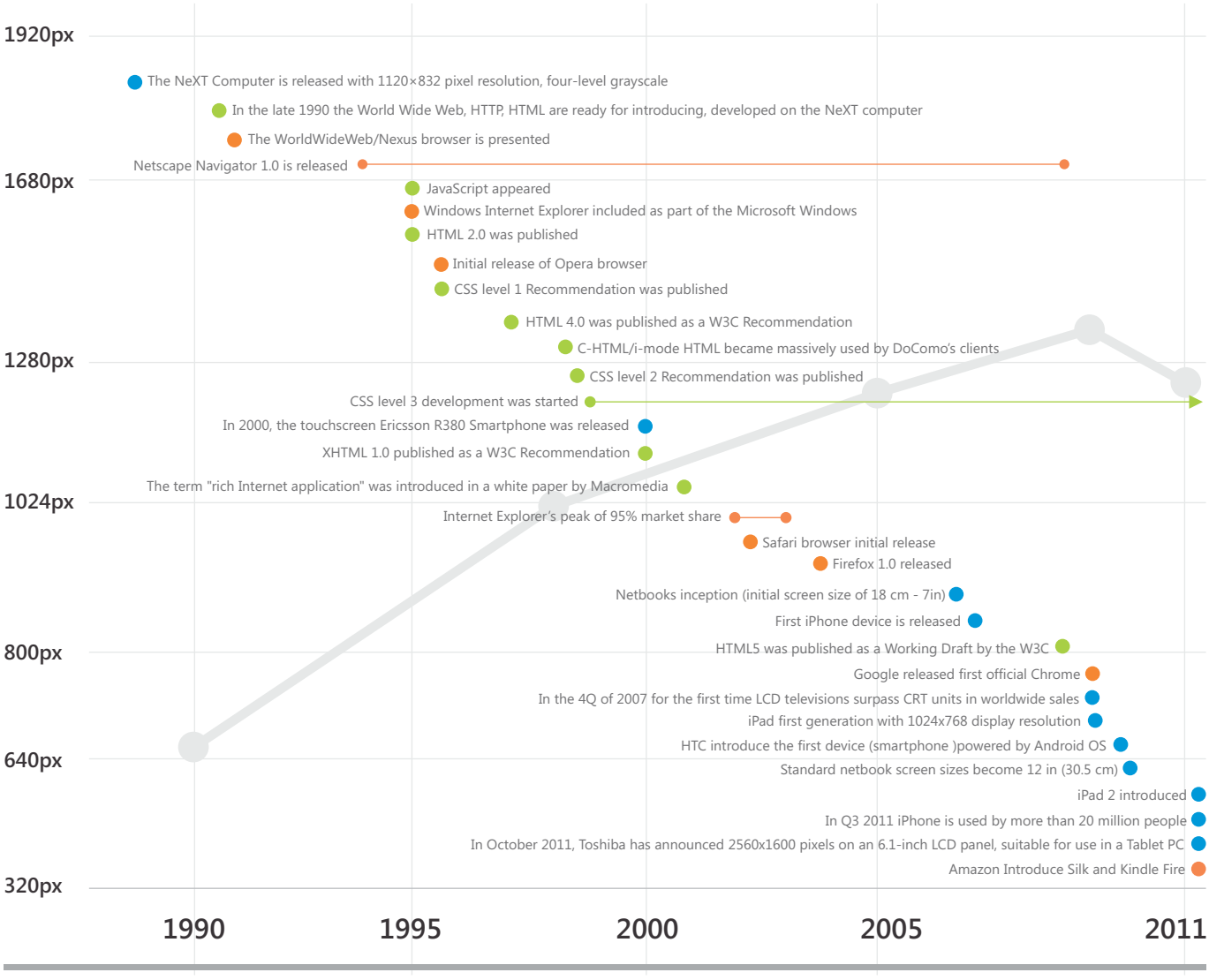
deliver more than expected

Do you remember when most websites had a message in the footer, saying: “Best viewed with Netscape Navigator”? Years ago it was common to ask visitors to adapt their browsing environment to your website. Anyone not using the targeted technology received a diminished (or broken) web experience.

The web has changed since then and standards are now more important than ever. However, the challenge of supporting different web browsers and devices has not disappeared. In fact, these complications have risen due to the increased number and diversity of Internet devices.

> *“Supporting all web browsers and devices has always been difficult. This challenge, instead of diminishing over time, has grown.*
> *Today, due to the explosion of mobile and tablet devices, there is more diversity than ever.”*

For example, during the late 90's the dominant screen resolution was 800x600. LCD screens were then introduced and screen resolutions grew to 1024x768. Then in 2005 widescreen monitors forced designers to compensate for wasted whitespace. A few years later, mobile browsers introduced low-resolution screens and today we're seeing the rapid rise of tablet devices. Below is a timeline graphic showing the evolution of these web technologies:



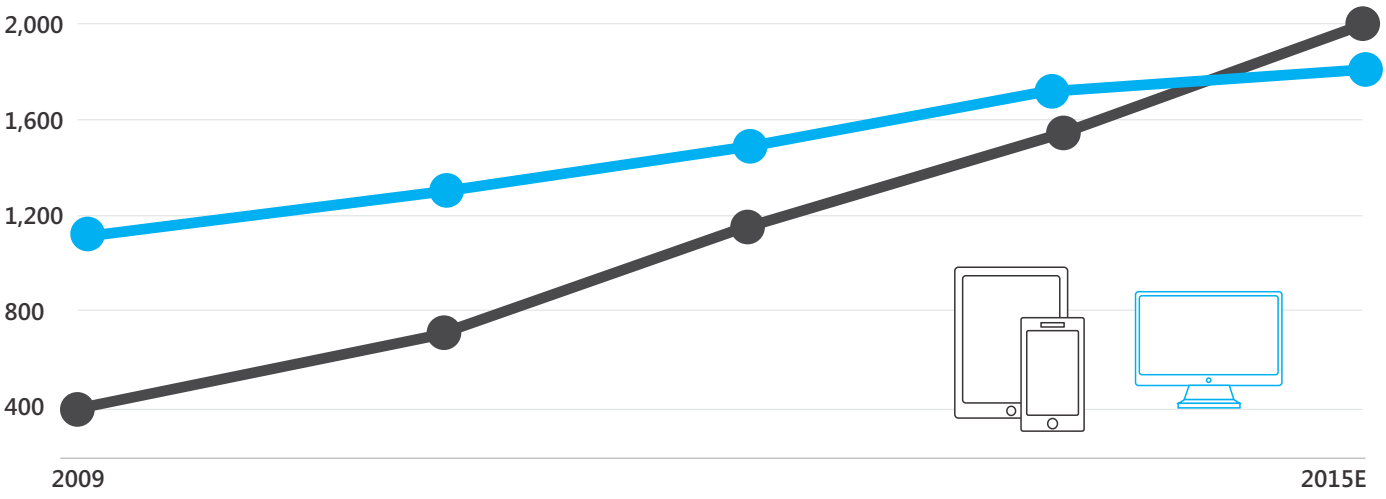
Many of the technologies shown in this timeline remain in use today. This requires organizations to maintain broad "legacy support" while simultaneously confronting the accelerating pace of emerging technologies. Most important among these new technologies is the rapid adoption of mobile devices (smartphones & tablets); these devices open many new opportunities and also create new challenges.

Mobile-devices are trending, but the core challenge looms large

The first iPhone was released by Apple on June 29th 2007. This device utilized touch technology to enable users to easily browse and navigate the web. As a result, the iPhone revolutionized the mobile web browsing experience.

Smartphones & tablets with similar capabilities have now become common place; resulting in a huge spike in mobile-related web-traffic. In fact, based on current growth trends the IDC is forecasting that mobile traffic will overtake "traditional" desktop traffic by 2014.

> *"Although mobile devices have seen the largest percentage of recent growth, these devices only represent a fraction of total web traffic. The wider Internet audience remains spread across a multitude of devices."*



Because of this immense growth, organizations are understandably interested in mobile opportunities. However, mobile traffic represents only a subset (8%) of all web traffic.

Screen resolutions statistics (2011)

49%

Smaller displays

Screen width under 1600px to 1024px

29%

Tablets and netbooks

Screen width under 1024px to 800px, supports both orientation portrait and lanscape

14%

Monitors with larger displays

Screen width higher than 1600px

8%

Smartphones

Screen width under 800px

Real-world web-usage reveals a diverse spread of devices & resolutions; these devices vary from 320px (Blackberry devices) to 1600px (Widescreen displays). Furthermore, the number of web devices is accelerating and creating even more diversity and fragmentation. As a result, organizations targeting only two scenarios (desktop & mobile) are creating an unoptimized experience for many of their visitors.

By contrast, creating ideal web experiences for **ALL** web visitors requires extensive support for a wide variety of devices. To create this support websites must adapt based on the visitor's personal choice of device. Creating these device-specific adaptions has historically been very challenging.

[1] **Net Market Share** - Usage Share Statistics for Internet Technologies http://www.netmarketshare.com/report.aspx?qprid=17

[2] **StatCounter** - GlobalStats http://gs.statcounter.com/#resolution-ww-monthly-201010-201110

[3] **Wikipedia** - The Free Encyclopedia http://en.wikipedia.org/wiki/Display_resolution

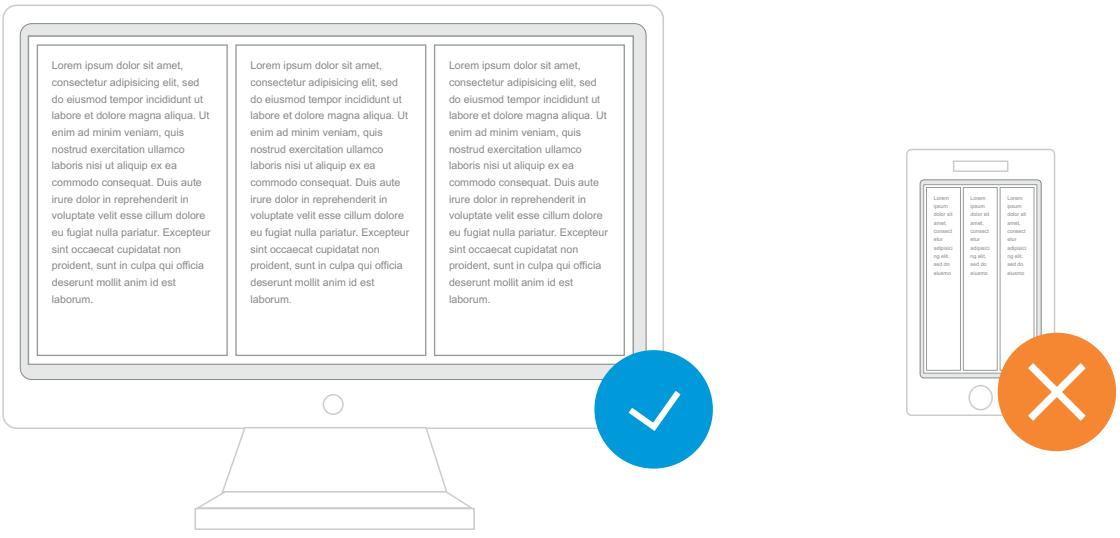
Historic solutions do not scale to address the proliferation of web devices

Web designers have struggled to adapt websites for different devices and browsers for many years. Consequently, there are several techniques used to provide these device-specific adaptations. However, these traditional solutions create problems of their own; resulting in bad user experiences or crippling content management efforts.

> *"The common tactics used to address mobile devices are time consuming, error prone and do not scale to the variety of environments already in use today. To confront modern challenges we need new design techniques."*

Using tables for adaptive web content

Using tables for layout formatting was a common technique during the 90's and occasionally continues today. When most browsers started supporting CSS2, using DIV elements became much more popular. Later on, when displays larger than 1200px became popular, many front-end developers used tables for their adaptive layouts. Table designs can adapt the layout to the screen's width, but cannot adapt font sizes, buttons, etc. Furthermore, tables are row-based which means a 3-column table will always have 3-columns, regardless of the underlying device. This results in an uncomfortable viewing experience on smartphones:



Creating dedicated (mobile) versions of web content

Many websites maintain separate mobile versions of their web content. These websites detect the visitor's device and redirect to a sub-site (for example, http://m.domain.com) to present a customized experience. Alternately, the website might use the same page but apply different HTML markup. These techniques work fine for a couple of devices, but it's impossible to scale this strategy to address the large number of web-devices already in use today. For each device programmers, front-end developers, and content writers must manage an additional version of the web content.

Supporting an unlimited number of devices with responsive design

Responsive design is a design philosophy that addresses the extreme amount of diversity in web devices using "best practice" web standards. By using CSS3 media queries web pages can adapt based on the capabilities or constraints of the device. This means web pages can "progressively enhance" or "gracefully degrade" for each visitor.

> *"Responsive design utilizes web standards (CSS3 media queries) to create web pages that adapt fluidly to any device."*

CSS3 (Cascading Style Sheets) media queries are at the core of responsive design; this technology enables web pages to detect the visitor's device-type and screen resolution and adapt the web styles to create an optimized UI for that device. Below is a simple illustration of this technology in action:

Client's maximum device width is 480px

Client's maximum device width is 1280px

Here is a sample CSS3 media query definition for these two different displays:

```
@media screen and (max-device-width: 480px) {
    .column {font-size: 15px;width: 100%;}
```

```
@media screen and (max-device-width: 1280px) {
    .column {font-size: 12px;width: 33%;}
```

By establishing a set of adaptive styles web pages will fluidly conform to an unlimited number of devices and resolutions. For website managers, there is no need to re-create web content in sub-sites or create dedicated markup for a particular device. Your web page transforms into a perfect fit for all devices.

Smaller displays

49% **Screens where most of the websites will fit perfectly** 51%

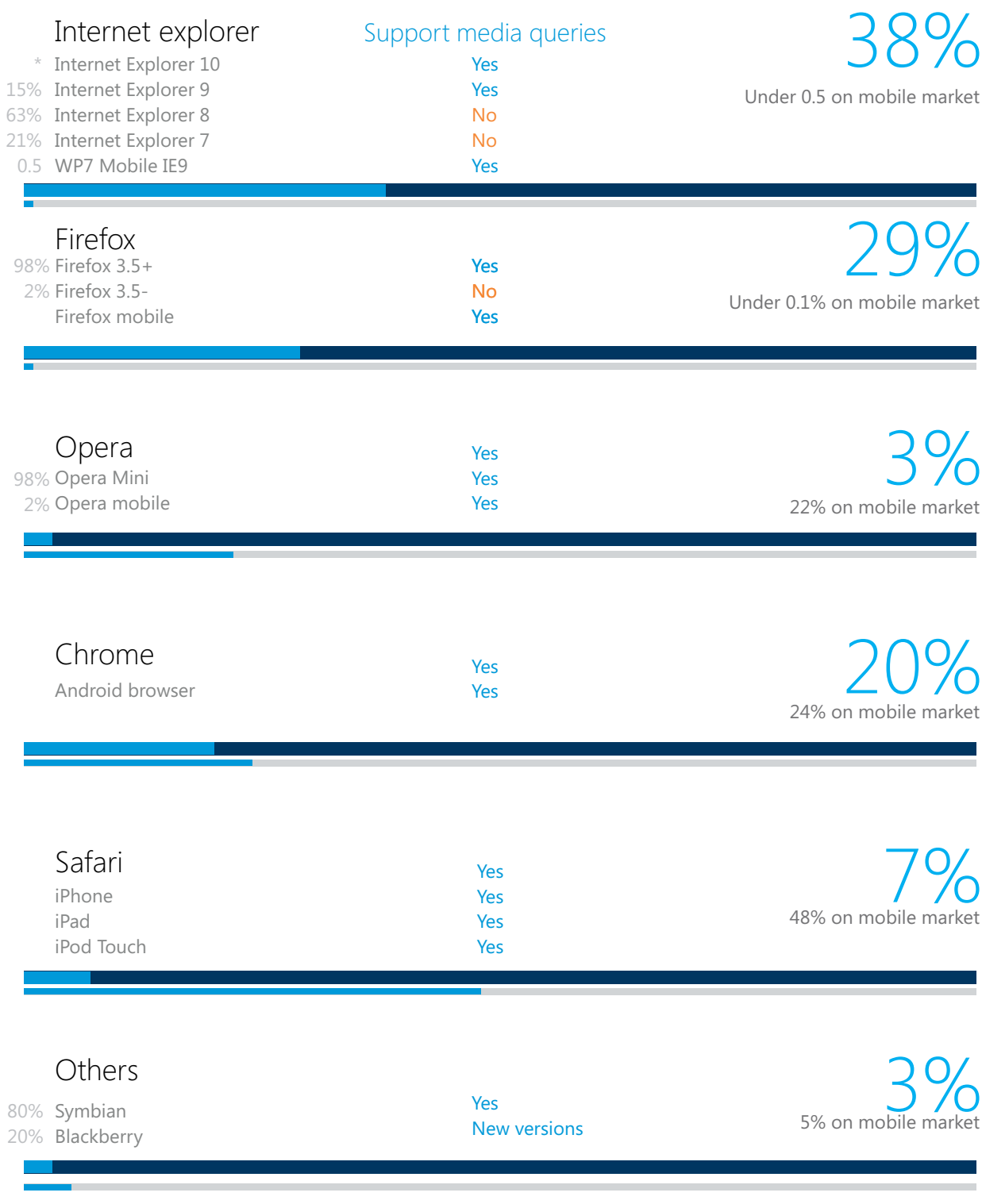
Screens where the user experience can be improved with responsive design

Tablets and netbooks
Monitors with larger displays
Smartphones

Because we have historically targeted only a couple of device scenarios (desktops & smartphones) most web visitors aren't getting an optimized experience. By contrast, a website using responsive design could transform a standard 3-column layout into numerous scenarios.

Evaluating web browser support of Responsive Design

The media queries that power responsive design were defined as part of the CSS3 (Cascading Style Sheet) web standard. This standard is now supported in all modern web browsers and even has extensive support amongst older web browsers.



Internet Explorer 8 poses the largest risk since it maintains a sizable browser marketshare. However, even in this case there are Javascript libraries * that emulate CSS3 media queries in older versions of IE. Furthermore, the CSS3 media queries involved in Responsive Design are simply ignored if not supported. Consequently, it's possible to utilize responsive design without negatively impacting older browsers.

Comparing the advantages & disadvantages of Responsive Design

Advantages

- No additional server logic is required
  It is not necessary to detect devices or redirect the user in order to provide accessible content for smaller/bigger screen sizes. The logic for transforming the webpage is built into the styling.
- Implementation without templates
  You don't need to support different templates or markup for the different devices.
- It can be easily integrated to an existing website
  If your website is written with compliant HTML and CSS, you can easily go responsive.
- No extra work for the content writers
  There won't be any additional work for your content writers; for example, creating multiple versions of the same content or populating extra data fields for mobile version.
- No double URLs and user agent problems
  You will have only one address for one page and it will be accessible for all devices - no mobile subdomains or URL parameters will be necessary. In addition, many smartphone “browser user agents” introduce themselves as desktop browsers. With the responsive design technique, you don't need to worry about the browser behind the device.
- Additional useful properties
  There are many more device properties that you can access with media queries besides the screen width. These include: orientation mode, aspect ratio, colors, resolution, etc.

Disadvantages

- JavaScript control
  If you want to go with one website version for all devices, then you should always have in mind JavaScript events like hover or click since the newest devices prompt the user to touch, tap, swipe etc.
- Information architecture is the same
  Since some devices have really small screen sizes, the information architecture of a website can be constructed in a different way. Also, there are specific web applications like mobile banking where the logic and security are implemented differently.

Sitefinity makes Responsive Design more accessible than ever

Sitefinity CMS includes layouts that can effortlessly be dragged & dropped onto any page or template. These layouts enable end-users to easily add new columns (2-columns, 3-columns, etc.) onto their web pages without any knowledge of HTML, while still producing “best practice” DIV based markup.

Consequently, through these layouts, Sitefinity is already aware of the design structure being used in the website. This enables Sitefinity customers to easily attach responsive design rules to these layouts. These responsive rules can be defined in Sitefinity using a web-based interface. Through this interface, website administrators can instruct Sitefinity to transform a 4-column layout into a 4-row layout when the visitor is using a smartphone. Furthermore, Sitefinity includes a web-based preview-mode that enables content authors to quickly preview their content in a variety of devices (iPad, iPhone, etc.).

By using drag & drop layouts and attaching responsive rules to these layouts, Sitefinity customers can quickly create web pages that fluidly adapt to an unlimited number of devices. As a result, organization can focus on creating compelling content instead of re-creating content countless times.

Learn how Responsive Design is built in Sitefinity 

Highlights

→ Web content is created once, but usable on an infinite number of devices.

→ Responsive CSS3 media queries are generated automatically by Sitefinity via a user-friendly UI.

→ End-users can create responsive pages by using drag & drop layouts.

→ Administrators have complete control over how Sitefinity layouts transform.

→ Built-in previews simulate the web experience from numerous device types (iPhone, iPad).

About Sitefinity

Sitefinity is a modern CMS platform designed to help organizations pursue their online goals. Today the system powers over 10,000 websites worldwide across various industries- from Financial and Government Services, to Communications, Retail, and Entertainment. Thanks to Sitefinity's flexible architecture and scalability, you can create successful commercial websites, community portals or intranets. Sitefinity offers a revolutionary easy-to-use interface, simplicity, scalability and unmatched performance – everything you need, beautifully crafted in one product.

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