Offline Websites and WebApps on Mobiles

Take me to Cache

Level 200

Goals of this Session

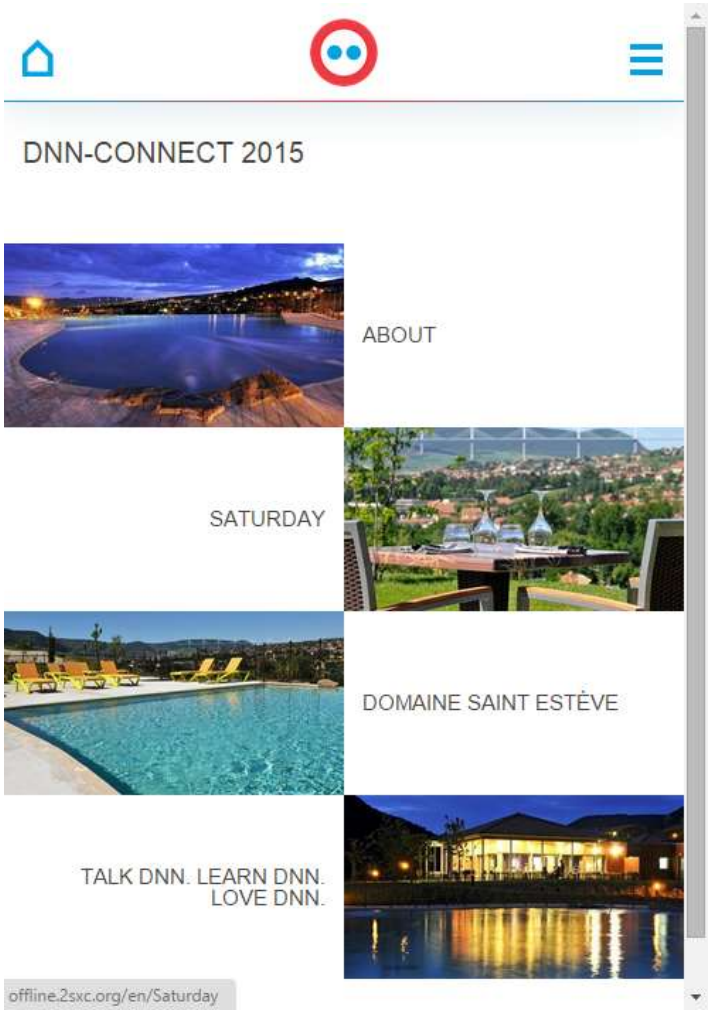
1. Learn how to take web sites, micro-sites, web-apps and similar offline
2. Learn to handle various challenges like
    1. Installation on devices
    2. handling updates
    3. optimizing content for offline-use

Agenda

- Test a demo
- understand the technical challenges
- understand html5 standards & solutions
- see sample implementation in 2sxc...
- so you can reuse it or adapt to your needs

What 4?

- Convention Sites
- Info-Sites
  - Products, Books
  - Museums, Restaurants…
- Product Manuals
- Product Configurators
- Sales-Materials
  - For door-to-door sales
  - In-store customer consulting
  - …
- …



Typical Benefits

- Much cheaper & faster vs. native apps
- More people have the skills to create this
- Easy to manage thanks to CMSs
- Easy to give nice visuals with HTML5
- Easy to duplicate once you have a working solution

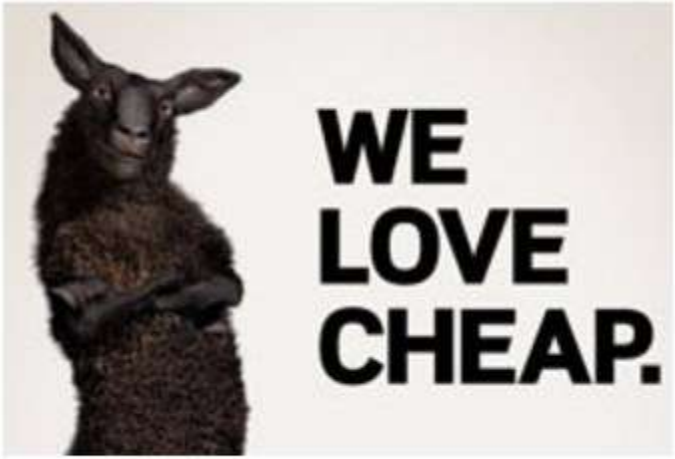


Image from http://www.bestvpnservice.com

This works since 2012

- The first I know of is Financial Times in 2012 http://app.ft.com →
- 2sic created our first solution for a QR-Christmas-game 2012 http://qr.2sic.com
- Right now we're working on a Disease Manual for Syria

http://offline.2sxc.org

Try the demo

Offline-Aspects of the demo

1. Don’t go offline on PC
2. Inform mobile users of feature – device specific
3. Custom icon on home
4. Enable download on device
    1. With all pages
    2. With full list of all dependencies
5. Enable later update of the offline copy
6. Manual control of refresh by DNN-admin

Let’s look at the setup

Setup

- DNN Portal
- Bootstrap layout
- All content and content-presentation managed by 2sxc
- Images auto-resized
- Take me to Cache
  Offline Website App

http://2sxc.org/apps

HTML5 Offline Mode

Web Application Cache Manifest

Understanding Offline Cache

```
CACHE MANIFEST
# Version 1.0
# Update 2015-05-27 16:32

CACHE:
http://offline.2sxc.org/en/
http://offline.2sxc.org/en/About
http://offline.2sxc.org/en/Saturday
http://offline.2sxc.org/ar/
http://offline.2sxc.org/ar/%D9%85%D8%B
http://offline.2sxc.org/Portals/21/Content/5
http://offline.2sxc.org/Portals/21/Content/T
w=1000&h=1000&mode=max&format=jpc
http://offline.2sxc.org/ar/%D8%A7%D9%8
/resources/shared/scripts/jquery/jquery.m
/resources/shared/scripts/jquery/jquery-m
/resources/shared/scripts/jquery/jquery-ui
https://oss.maxcdn.com/html5shiv/3.7.2/h
https://oss.maxcdn.com/respond/1.4.2/res
```

- The browser sees <html manifest="…">
- Browser retrieves that *manifest* file
- File is text-file containing list of resources to download
- Browser takes care of rest

Live: let's look at the manifest of offline.2sxc.org

Use fiddler

Run browser in mobile simulation mode

Challenges

- Must contain everything
  - Every page
  - In every language
  - Every image/pdf
  - Every CSS and JS
- Should only change when necessary
- Simple in a static site, tricky in a dynamic-content site

Solution

- Script in App which generates the Manifest on-the-fly using a http-crawler (like Google)
- App contains a list of manually added resources, mainly because of CSS-images etc.
- Manifest is cached in a content-item because of performance and time-stamp
- the Manifest-update is triggered manually, because code cannot reliably determine if anything changed (pics, pdfs, and hashes)

Crawler Setup

How it works

- Start with seed-page
- Find links, resources, etc. with a RegEx
- Add all the resources to the manifest-list
- Retrieve resources to check if it contains more links
- Follow the links – if they are on the same domain

Configuration

- Seed page (only 1 atm)
- Crawl depth (hardcoded, 2 levels)
- Stay on same domain

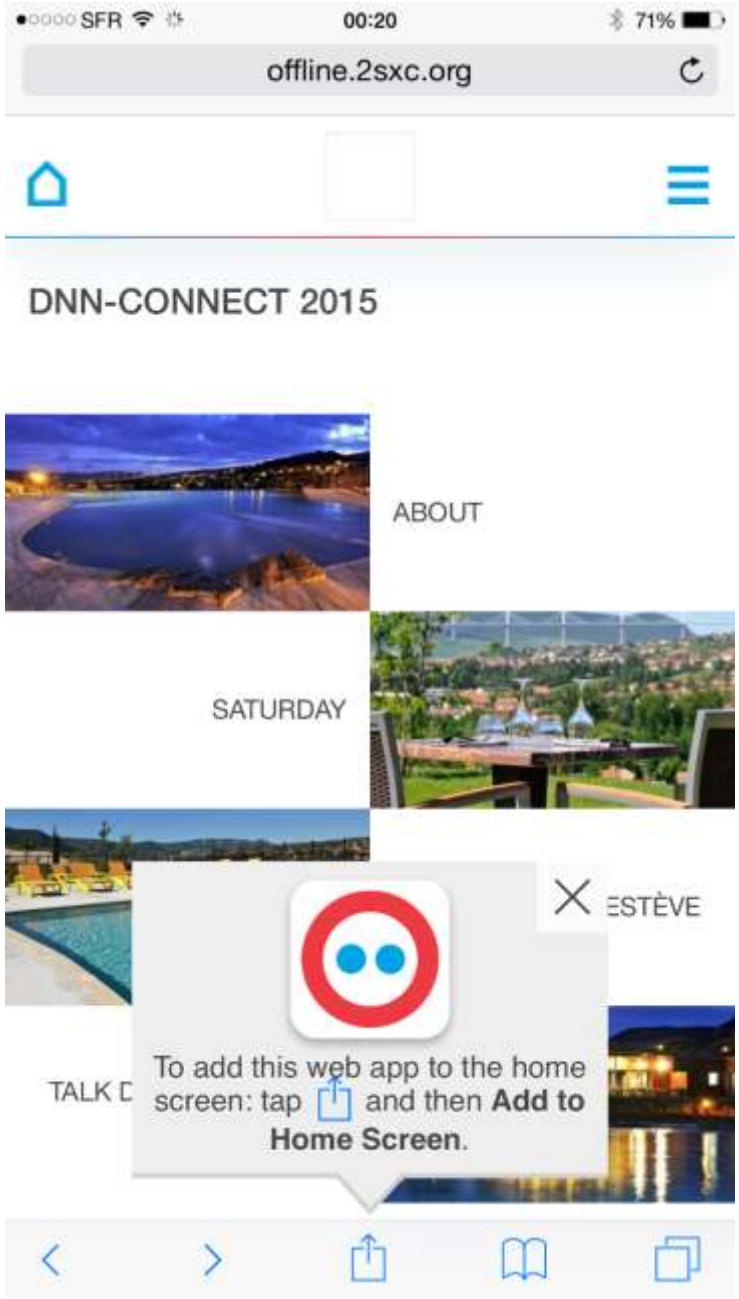
Installing on a device

Understanding device install

- Requires user interaction
- A bit different on each device
- User needs to be informed about it

→ Here we use a standard script because there are too many variations and we don't want to understand all the details

→ We couldn't use the CDN, because of we also needed an Arabic version


SFR
00:20
71%
offline.2sxc.org
DNN-CONNECT 2015
ABOUT
SATURDAY
ESTÈVE
TALK D
To add this web app to the home screen: tap and then **Add to Home Screen**.

Content-Upgrade Cycle

Process

- Every time the offline app is opened it will ask the server for a time-stamp and based on that decides to re-download everything.
- So when the Admin updates content, he starts a manifest upgrade
  → very hard to automate reliably

Tips to keep things simple

Design / Layout

1. Use few resources
    1. Fewer css/js
    2. Layout images as CSS sprites
    3. Be careful with DNN Client-Dependency
2. When resizing images – optimize for few variations instead of size optimization (so use the lightbox-size in the thumbnail)
3. When using JS-code to do something, ensure the links to the stuff is in the page somewhere for the crawler

Content Structure / Management

- Try optimizing to fewer pages – potentially including “details-dialogs” as hidden DIVs
- Use general responsive / mobile best practices like
  - Break points in your design
  - Folding areas
  - Etc.

Advanced Topics

Disable offline on desktop

- For admins it would cause side-effects
- …but it also causes trouble before login if something fails
- And has little benefit

→So the in-skin code should only add the manifest attribute if mobile device

→RegEx from DetectMobileBrowsers.com

This is hard

- Offline Data-Collection (by trained people) like for surveys – hard but ok
- 3D Graphics – possible
  → eg 3d in www.balleristo.com – the initial 3D ball would work, but not the user-customized ball

This is hard or impossible

- Offline Customer Feedback – unreliable (user would have to open the app again for data transfer)
- Push notification – not possible
- Device-specific stuff (compass, gyro) – hard, maybe impossible

Compare to PhoneGap / Cordova

Pro PhoneGap

- Also HTML5
- Easier to use device native systems (contacts, camera, Bluetooth, NFC, etc.)
- Once it works, various aspects are more controllable / more reliable
- Can (must) use App-Stores and can/must use store-buy features
- Push, Geofencing, etc.

Pro Pure-Web

- Much simpler learning curve, more Devs
- Much simpler upgrade/distribution
- Distribution NOT through app-stores
  - Apple store tends to refuse trivial apps or “browser wrapper apps”
  - Buy-features don’t cost 30%

Questions?

Please Help us with 2sxc!

We need people passionate about bootstrap, knockoutJS, Ember, content-design, css3, … for the community

More JavaScript Showcase

- Rotating 3D ball with custom logos/text
  → www.balleristo.com
- Dynamic catalog with search, dynamic loading, Hashbangs and more
  → www.coin-invest.li