Flash Lite technology for Mobile phones

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About me

- **Flash Mobile Software Engineer R&D at VeriSign**
- **Blog:** www.biskero.org **– E-mail:** biskero@gmail.com
- **Flash Lite project**: **Kero Mobile** www.biskero.com
- **Develop Flash Lite content since 2004**
- **Adobe Flash Lite 1.1 Certified Instructor/Developer**
- **Adobe Community Expert - Mobile**
- **Adobe MAX 2006 speaker**
- **Boston Adobe Mobile and Devices User Group Manager**
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- **Forum Nokia Champion**
- **Co-founder of Mobile Monday Boston**
 www.momoboston.com

Goals

- What is Flash Lite ?

- Flash Lite Development environment

- Flash Lite Content types

- Understanding Flash Lite ecosystem

Agenda

- Flash Lite technology
- Flash Lite development
- Flash Lite ecosystem
- Flash Lite content
- Sample code
- Demos

Flash Lite Mobile Technology

- Flash Lite is the Mobile version of Flash for the Web

- Flash Lite for Mobile Phones
  - Runs on different mobile platforms: Symbian, Brew, Windows Mobile 5, mobile browser.

- FlashCast and Flash Home
  - Channels subscription
  - Client/server technology
  - Carrier/Operator
  - Push content

- Flash Lite MMI
  - UI customization
  - Menu
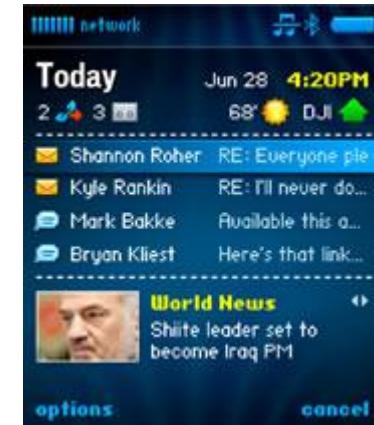
Flash Lite Mobile Technology

- Flash Lite implementation

  - Standalone: applications, games, etc.

  - Wallpapers

  - Screensavers

  - Sub-LCD

  - Browser: render Flash Lite content within a mobile site

  - Animated Ringtones

  - etc….

Flash Lite enabled phones

- Nokia: more then 40 Flash Lite enabled mobile phones
  - Flash Lite 1.1
    - Series 60 3rd Ed: E50, E60, E61, E62, E65, E70, E90, N71, N72, N73, N75, N76, N80, N91, N92, N93, N93i, 3250, 5500
    - Series 40 3rd Ed FP 1: 6125, 6126, 6130, 6131, 6133, 6136, 6151, 6233, 6234, 7373, 7390, 8800 Sirocco
  - Flash Lite 2.0
    - Series 60 3rd Ed FP1: N95, 5700
    - Series 40 3rd Ed FP2: 5300, 5200, 6085
- Sony Ericsson, Motorola, LG and other OEM
- Verizon: Flash Lite 2.1 OTA (13 phones)

Flash Lite player capabilities

- **Flash Lite 1.1**: based on Flash 4 and AS1
  - load text data over http/https/local
  - load swf (Flash 1.1 or 4 version) over http/https/local
  - invoke the SMS, MMS, Tel, Email mobile phone system
  - invoke browser using getURL API
  - retrieve IMEI
  - retrieve some specific phone information via Fscommad2 API
  - No functions or arrays
  - Cannot save text

Flash Lite player capabilities cont.

- **Flash Lite 2.0**: based on Flash 7 and AS2
  - everything Flash Lite 1.1 can do
  - save data as Mobile Shared Objects (pretty much cookies)
  - load images (jpeg, png, gif) via http/https/local
  - load sound (mp3, aac...) via http/https/local file/embedded (sounds is loaded into memory and then played back)
  - play video (3gp, mp4, mov) via streaming http/rtsp, local files/embedded (it uses the mobile phone video player)
  - define arrays, functions, classes
  - XML

Flash Lite player capabilities cont.

- **Flash Lite 2.1**
  - Same capabilities has Flash Lite 2.0
  - Inline text
  - XMLSockets
  - Performance improvements
  - Available for free from Adobe.com for BREW, Windows Mobile 5 and Symbian
- **Flash Lite 3**
  - Flash Video support (version not yet known)
  - Flash Video Codec build into the player
  - Other capabilities unknown
  - Available around Q4 of 2007 to developers *
  - Enabled Handset end of 2007 *
  - * Source Adobe press release

Flash Lite Development

- Flash 8 Professional IDE
  - Flash Lite 1.0 and 1.1 included
  - Flash Lite 2.x <u>Authoring update</u>
  - <u>Device Profiles updates</u>

- Flash CS3 Professional
  - Device Central is mobile content emulation and device intelligence tool

  Find all these resources at **adobe.com/mobile**

Note: Need to have QuickTime player installed for video

Flash Lite Development cont.
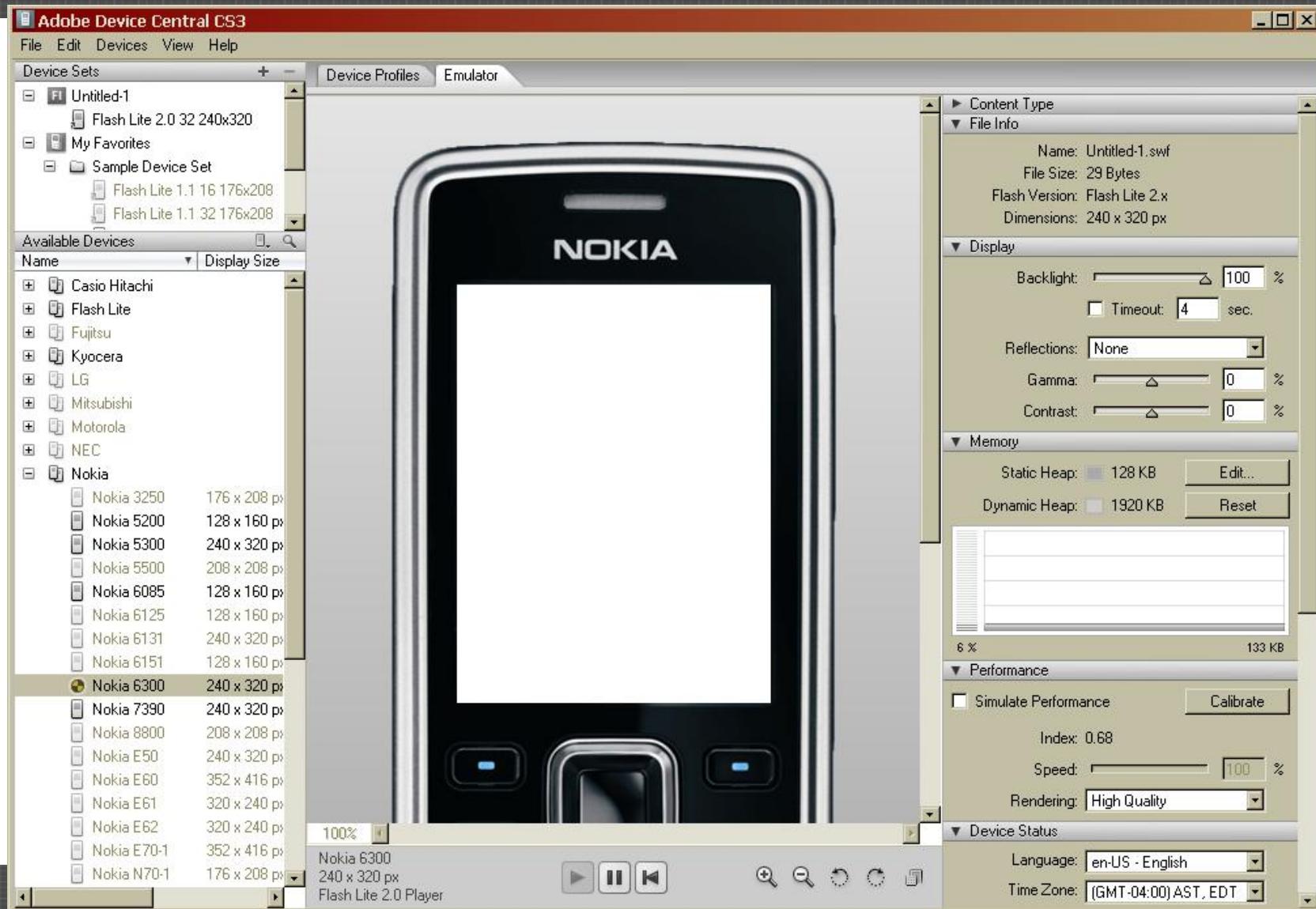
Flash Lite Development cont.

- Nokia SDK and Flash Lite 1.1
  - Flash Lite 1.1 standalone and browser
    - Nokia S60 3rd Edition C++ SDK (January 17th 2006)
    - Nokia S60 J2ME 3rd Edition
  - Flash Lite 1.1 standalone, browser, wallpapers, screensaver
    - Nokia S40 3rd Edition FP 1 SDK
- Nokia SDK and Flash Lite 2
    - Nokia S60 3rd Edition FP 1 C++ SDK
      - Does not have Flash Lite support?
    - Nokia S40 3rd Edition FP 2 SDK
- BREW SDK with emulator and Flash Lite 2.1

Flash Lite API

- **fscommand2()**
  - A set of API to get/set mobile specific information
  - fscommand2("FullScreen", true);
  - fscommand2("SetSoftKeys", "left", "right");
  - fscommand2("GetBatteryLevel");
  - fscommand2("GetSignalLevel");
  - fscommand2("GetDeviceID", "deviceID");
  - fscommand2("StartVibrate", 2500, 1000, 2);
  - More …

Flash Lite API cont.

- **GetURL** API calls
  - Make a phone call:
    - *getURL("tel:1234567890");*
  - Send a SMS:
    - *getURL("sms:1234567890?body=Ciao, Flash Lite is really cool!");*
  - Send a MMS: (cannot attach media files)
    - *getURL("mms:1234567890?body=Ciao, Flash Lite is more then cool!!");*
  - Send an Email:
    - *getURL("mailto:biskero@gmail.com");*

Flash Lite API cont.

- **GetURL** API calls

  - getURL("http://www.nokia.com");
    - Opens the browser and loads the site
  - gerURL("http://domain.com/script.php");
    - opens the browser and execute the script (POST and GET methods are supported)
  - getURL("http://domain.com/video.3gp");
    - opens the browser and downloads the video file
  - getURL("http://domain.com/music.aac");
    - opens the browser and downloads the audio file
  - getURL("http://domain.com/image.jpg");
    - opens the browser and downloads the image file

Flash Lite 1.1 API

- Flash Lite 1.1: text
  - Name value pair data structure
    - loadVariables("http://domain/script.php?var1=1&var2=2", "");
      - GET and POST methods are supported
    - loadVariables("data.txt", "");
    - loadVariablesNum("http://domain/script.php?var=1", 2);
      - GET and POST methods are supported
- Flash Lite 1.1: images
  - Images cannot be loaded directly into Flash Lite 1.1
  - Need to embed images png, jpg .. into swf of format 4 or 1.1 (manually or script)
    - loadMovie("http://domain.com/clip.swf", "clip");
    - loadMovie("clip.swf", "clip")
  - You can use getURL API to download/store images content to the phone

Flash Lite 1.1 API

- ## Flash Lite 1.1: sound
  - embed sound into swf (Flash Lite 1.1 or 4 format)
  - Make sure sound formats are supported
    - *loadMovie("http://domain.com/sound.swf", "clip");*
    - *loadMovie("sound.swf", "clip");*
    - You can use getURL API to download/store sound content to the phone

- ## Flash Lite 1.1: video
  - Not supported directly
  - You can use getURL API to download video content to the phone

Flash Lite 2.x API

- ## Flash Lite 2.x: text and XML
  - **LoadVars class:** name value pair data structure &var=1
    - *varObj.load("http://domain.com/data.php");*
    - *varObj.load("data.txt");*
  - **XML class:** XML data structure
    - *xmlObj.load("http://domain.com/data.php");*
    - *xmlObj.load("data.xml");*

- ## Flash Lite 2.1: XML
  - **XMLSockets() class:**
    - *socketObj.connect("http://domain.com", port);*
    - *socketObj.send(xmlObj);*
    - *socketObj.close();*
  - **Note**: sockets keep a persistent connection between client and server. Data charges!

Flash Lite 2.x API

- ## Flash Lite 2.x: sound
  - Sound is loaded into memory and then played back
  - No streaming sound.
  - **Sound class**: loadSound(), start(), stop(), setVolume(), etc
    - *soundObj.loadSound("http://domain.com/sound.aac", false);*
    - *soundObj.loadSound("sound.aac", false);*

- ## Flash Lite 2.x: images supports jpg/png/gif/swf
  - **MovieClipLoad class**: loadClip(), unloadClip(), getProgress(), etc.
    - Call back: onLoadStart(), onLoadProgess(), onLoadComplete(), onLoadInit(), onLoadError()
    - movieObj.loadClip("*http://domain.com/image.jpg*", container);

Flash Lite 2.x API cont.

- ## Flash Lite 2.x: video
  - Device video player
  - Local video playback
  - Streaming video over http/rtsp (Nokia default streaming protocol is rtsp)
  - **Video class: play, stop, pause, resume, seek**
    - *videoObj.play("rtsp://domain.com/video.3gp");*
    - *videoObj.play("video.3gp");*

    - **Trick**: you can embed a video into a swf and use the MovieClipLoad API to load it
    - *movieObj.loadClip("http://domain.com/video.swf", container);*
    - *movieObj.loadClip("video.swf", container);*

Flash Lite 2.x API cont.

- You can use the System.capabilities.videoMIMETypes array to determine what video formats a device supports.

    - trace(System.capabilities.videoMIMETypes);
      Returns an array with the video capabilities of the
      mobile phone

    - System.capabilities.videoMIMETypes["video/3gpp"]);

    - System.capabilities.videoMIMETypes["video/mp4"]);

    - System.capabilities.videoMIMETypes["video/mov"]);

Dev. Best practices

- Flash Lite runs on mobile phones with limited memory and CPU
  - Load only the data that is needed
  - Make sure you have control over the data loaded by your application/game
  - Keep in mind that mobile data has a price
  - Latency: mobile users do not like to wait
  - Processing: reduce mobile CPU utilization
  - Reduce code size and complexity: every bytes and every CPU cycles count
  - Use small image (Kbytes)
  - bitmap vs. vector
  - Free-up memory

Data Optimization

- Loading data increase complexity
    - Streaming, infrastructure?
    - Local, delivery?
- Data formats might depends on specific device and environment
    - Text/XML: data analysis, cost
    - Sound: best format
        - Use AAC instead of MP3
    - Images: custom quality and size
    - Video: optimize for small screen, frame rate
        - Use 3GP, MP4 or FLV
        - Wireless network friendly
- Digital Rights Management
    - Protect you content and media

Flash Lite 2 example

- Loads
  - Text/XML
  - Audio: aac format
  - Image: gif format
  - Video: embedded into swf

Flyer: Python S60 – Flash Lite 2.1

- Open Source project: Flyer

  – Developer Felipe from i2Tecnologia
  – Integrates Python S60 with Flash Lite 2.1
  – Symbian S60 V3.0 – V2 FP2-3

    – Take photos with device camera from Flash Lite
    – Take device screenshots from Flash Lite
    – Send files over a Bluetooth connection from Flash Lite
    – Get the contact entries in the default device database
    – Text To Speech

http://www.felipeandrade.org/flyer/
http://code.google.com/p/flyer/

Flash Lite 2.x course & book

- Adobe is offering a free Flash Lite 2.x for Symbian and BREW: Mobile Application Development training course for developers, partners and instructors. For instructors there will be an opportunity for certification on the 4th day of the course. The course will be held on June 5 - 8, 2007 in Boston (Newton, Adobe office).

- Tuesday – Thursday from 9:00 – 17:00 course instruction

- Friday 9:00 – 17:00 stand up certification for instructors wishing to get certified

  - If interested, please register for this class by contacting Adam Abramski (aabramsk@adobe.com)

- Book: Foundation Flash Applications for Mobile Devices http://www.flashmobilebook.com/blog/

Flash Lite ecosystem, $$$

- Ok, how do I make money?
  - Mobile Content Aggregators
    - Handango.com
    - Clickgamer.com
    - Nokia Content Catalog

  - Verizon Flash Lite Ecosystem
    - Smashing Content
    - FunMobility
    - Atom Entertainment

Thank You

Q/A

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