

# Cloud Apache OpenOffice Based on HTML 5

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### Agenda

- Speaker Introduction
- Tremendous Opportunities from Increasing Users of Mobile Devices
- Cloud AOO to Increase the Market Share
- Benefits of the Approach
- Existing Challenges and Possible Enhancements for the Future
- Q&A





### Speaker Introduction

### Jian Hong Cheng

- Symphony Documents Team Leader
- AOO Writer, MS Word Binary Fidelity, ..., Developer
- Former AOO PPMC Member,
   Stay Foolish
- Beijing China

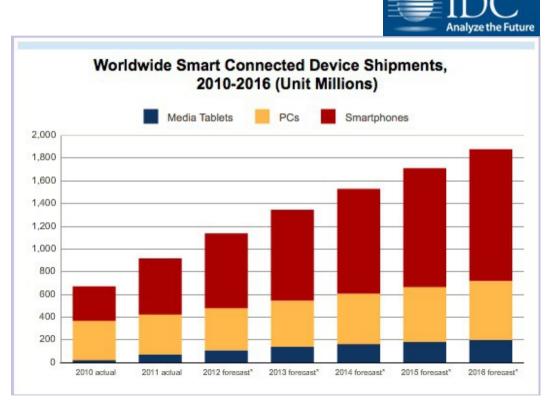
### Fan Zheng

- Symphony Documents Team Member
- AOO Writer, MS Word Binary Fidelity,
   ..., Core Developer
- AOO Committer,
   Stay Hungry for Technologies
- Beijing China



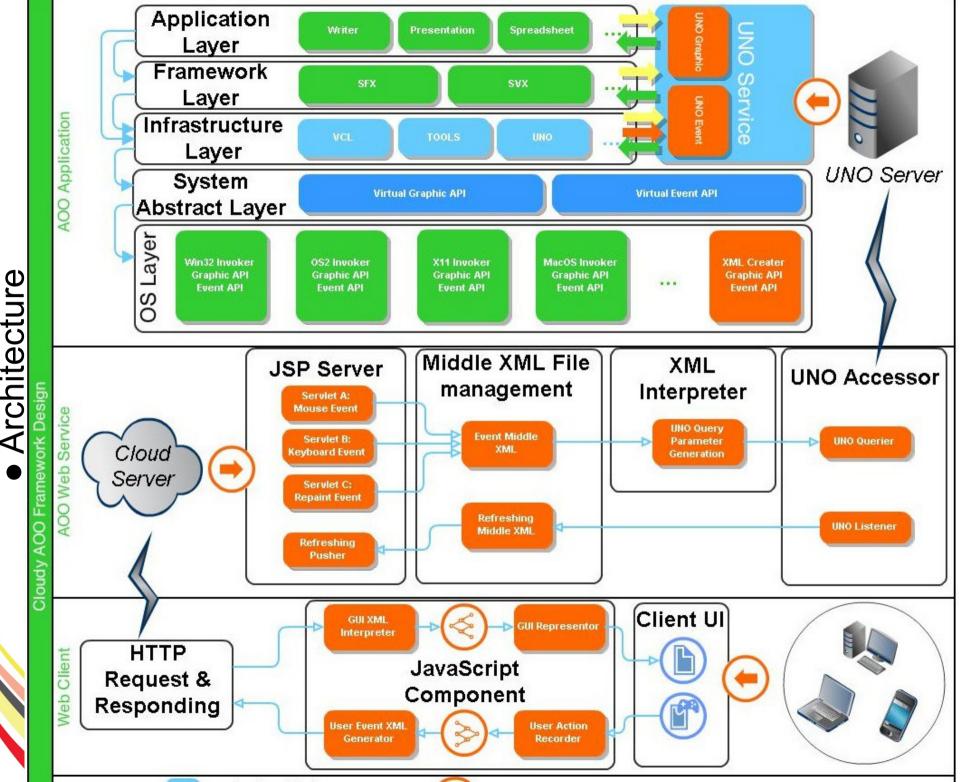
# Tremendous Opportunities from Increasing Users of Mobile Devices

- Statistical Report from IDC
  - 2011: About 1,000 Million
    - Windows PC(x86 Compatible CPU): 35.9%
    - Android (ARM CPU): 29.4%
    - IOS: 14.6%
  - 2016: About 1,800 million
    - Windows PC (x86 compatible CPU) :25.1%
    - Android (ARM CPU): 31.1%
    - IOS: 17.3%



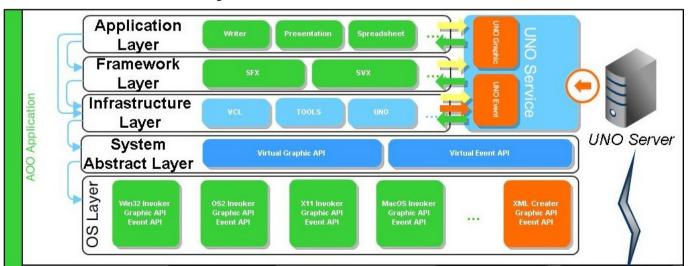


- Brief Introduction of the approach
  - Run AOO under a cloud environment as a service
  - Access AOO through a web browser
  - The UI of AOO will be transformed and presented within the client's web browser
  - 'View', 'Operate' and 'Edit Content'
    - E.g., locating cursor, inputting characters, selecting content for deletion or change of properties within web browser
- Main technical composition
  - AOO+Web Server+XML+HTML+JS+Dojo
    - AOO: AOO Professional UNO
    - Web Server: Apache Tomcat 7.0.26
    - XML: XML
    - HTML and JS => HTML5



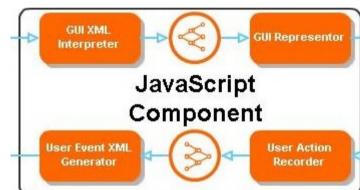


- "UNO Graphic" and "UNO Event"
  - "GUI and Event APIs" are responsible for handling the user events (Mouse, Key and Refresh) and locating the actual positions within AOO
- "XML Creator, Graphic API and Event API"
  - Generate the middle GUI XML files that describe the UI, contents and layout in AOO



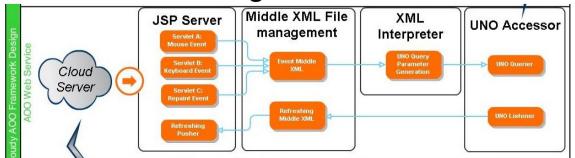


- Detail Introduction II of the Architecture
  - "GUI XML Interpreter"
    - Parse the UI info, contents and layout info recorded in the XML files
  - "GUI Representor"
    - Render the UI, contents and layout parsed from XML files to ensure the same contents and layout in AOO
  - "User Action Recorder"
    - Record the behavior of end users, such as the mouse, keyboard, refresh and so on
  - "User Event XML Generator"
    - Generate XML files to describe the recorded user events



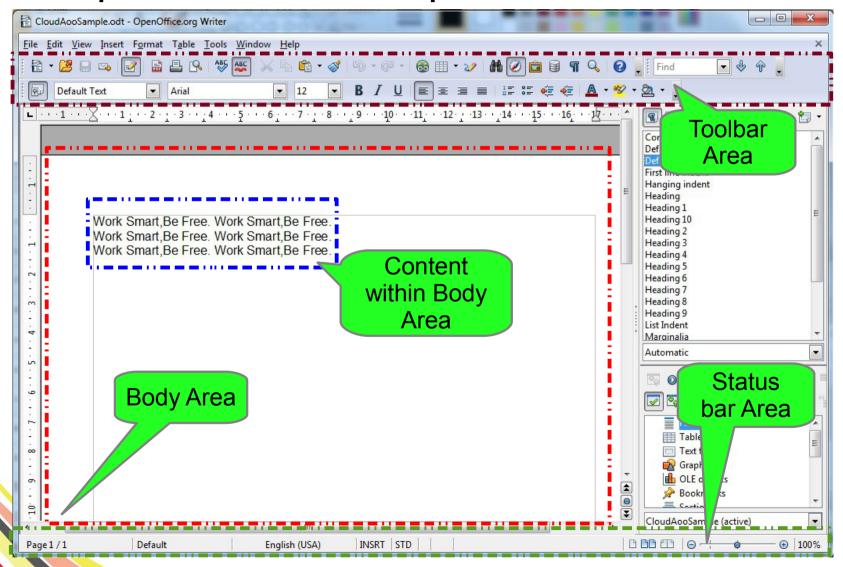


- Detail Introduction III of the Architecture
  - "Servlets A, B and C"
    - Transact the mouse event, keyboard, refresh and results respectively to AOO
  - "Event Middle XML"
    - Manage the middle XML files, such as add, delete and so on
  - "UNO Query Parameter Generator"
    - Translate the mouse event, keyboard, refresh and results to what they should be in AOO and generate the parameters for calling APIs of AOO



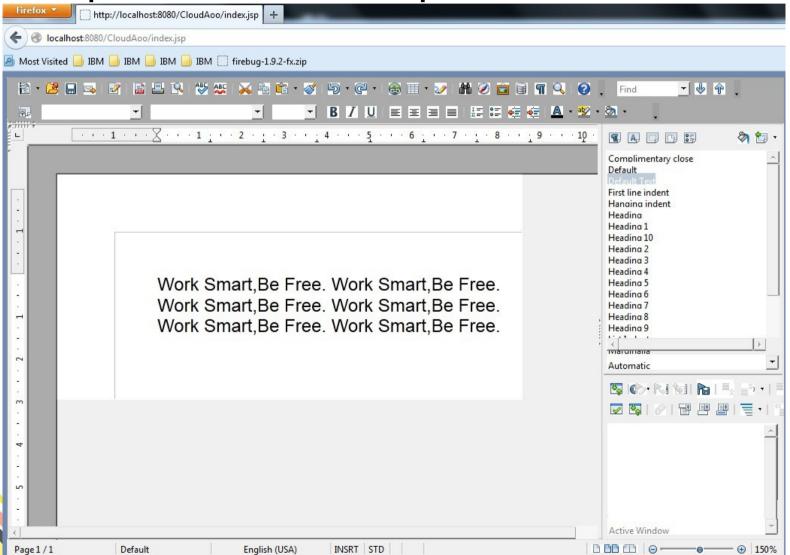


Sample for the POC - presented in AOO





• Sample for the POC - presented in web browser





Sample for the POC - Partial XML of Body Area

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- <PEP T="win" 1 F P="F" W_T="W_T_BRDWIN" S_P_X="0" S_P_Y="62" T_W="1034" T_H="553">
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 - <PEP T='win' [ F P="F" W_T="W_T_WIN' S_P_X="0" S_P_Y="62" T_W="1034" T_H="553">
  + <PE P T="odf" I F P="F">
   - <PE P T="win" I F P="F" W T="W T BRDWIN" S P X="0" S P_Y="62" T_W="1034" T_H="553">
    + <PEP T="odi" L F P="F">
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     - <PE P T="win" [ F P="F" W T="W T WIN" S P X="29" S P Y="91" T W="986" T H="505">
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          __GER_T_string; CG_00=04; L_W='02 S_R_X='171; S_R_Y='223'_ER_X='171; E_R_Y='242'_A_10=12'=Work Smart.Re_Erce_Work Smart.Re_Erce_vPE-
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       OF P_T="Win" [ F_P="F" W_T="W_T SCRERBX" S_P_X="1015" S_P_Y="596" T_W="17" T_H="17" >
        + <PE P_T='qdi' 1_F_P='F'>
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        + <PE P T="adi" 1 F P="F">
        c/PF >
      - <PE P T="win" | F P="F" W T="W T RULR" S P X="2" S P Y="91" T W="27" T H="505">
        + <PE P T="qdi" ] F P="F">
        «/PE»
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```



Sample for the POC - Partial XML of Toolbar

```
- <PEP T="win" L F P="F" W T="W T DCKARA" S P X="0" S P Y="0" T W="0" T H="0">
           - <PE P T="odi" [ F P="F">
                            <PEP T="rect" CG ID="2" L W="0" S P X="0" S P Y="0" E P X="0" E P Y="0" />
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                   - <PE P T="adi" [ F P="F">
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                                      PE P. T-"bmp" 1 F. P-"F" M. A. N-"M. BXSP. A" FILE SRC-"1374.bmp" SRC. SIZE X-"16" SRC. SIZE Y-"16" SRC. POINT X-"0" SRC. POINT Y-"0" DEST. SIZE X-"16" DEST. SIZE X
                                           DEST POINT X="15" DEST POINT Y="7" />
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                                      PEP_T="bmp" 1_F_P="F" M_A_N="M_BXSP_A" FILE_SRC="1378.bmp" SRC_SIZE_X="16" SRC_SIZE_Y="16" SRC_POINT_X="0" SRC_POINT_Y="0" DEST_SIZE_X="16" DEST_SIZE_X="16"
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                                            DEST_POINT_X="77" DEST_POINT_Y="7" />
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                                            DEST POINT X="102" DEST POINT Y="7" />
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                                           DEST_POINT_X='135' DEST_POINT_Y='7' />
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                                            DEST POINT X="168" DEST POINT Y="7" />
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                                           DEST POINT X='193' DEST POINT Y='7" />
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                                            DEST_POINT_X="251" DEST_POINT_Y="7" />
                                      PEP T="bmp" 1 F P="F" M A N="M BXSP A" FILE SRC="1389.bmp" SRC SIZE X="16" SRC SIZE Y="16" SRC POINT X="0" SRC POINT X="0" DEST SIZE X="16" DEST SIZE X="16"
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                                      PEP_T-"bmp" 1 F_P-"F" M_A_N-"M_BXSP_A" FILE_SRC-"1391.bmp" SRC_SIZE_X-"16" SRC_SIZE_Y-"16" SRC_POINT_X-"0" SRC_POINT_Y-"0" DEST_SIZE_X-"16" DEST_SIZE_Y-"16"
                                            DEST_POINT_X="309" DEST_POINT_Y="7" />

⟨PE P T="bmp" | F P="F" M A N="M BXSP A" FILE SRC="1392.bmp" SRC SIZE X="16" SRC SIZE Y="16" SRC POINT X="0" SRC POINT Y="0" DEST SIZE
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Sample for the POC - Partial XML of Status Bar

```
- <PEP_T='win' [_F_P='F' W_T='W_T_STUBAR' S_P_X='0' S_P_Y='615' T_W='1034' T_H='21'>
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            <PE P T="string" CG ID="4" L W="0" S P X="151" S P Y="4" E P X="151" E P Y="16" A ID="16">Default
            <PE P_T="line" CG_ID="11" S_P_X="146" S_P_Y="3" E_P_X="146" E_P_Y="18" L_W="1" />
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            <PEP_T-"line" OG ID-"10" S P_X-"272" S P_X-"3" E P_X-"272" E P_Y-"18" L_W-"1" />
            <PE P_T="line" OG_ID="11" S_P_X="273" S_P_Y="3" E_P_X="273" E_P_Y="18" L_W="1" />
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               DEST POINT X='854" DEST POINT Y='6" />
              SE P. Taibmai ( F. Pairim, A. Naim, BXSP. Ai File, SRC-11617.bmpi SRC, SIZE, Xai 11, SRC, SIZE, Xai 11 SRC, POINT, Xaioi SRC, POINT, Xaioi DEST, SIZE, Xai 11 DEST, SIZE, SIZE, Xai 11
```



### Benefits of the Approach

- This approach would extend the deployment of AOO to mobile devices enabling users to adopt AOO as their document handling tool
- This approach would have just a small impact on AOO, and would get win-win with it
- No platform dependent UI presentation in AOO as the UI presentation would be processed in the web browser
- This approach would support a deployment of AOO in cloud and social environments



# Existing Challenges and Possible Enhancements for the Future

- Existing Challenges
  - The AOO process can not be shared and each end user will have his/her own process when accessing AOO through web browser
  - The performance of rendering may have issues because the Web browser is responsible for that and there is existing a bridge connection
  - The UI presentation part of AOO needs to be XML-Based
- Possible Enhancements for the Future
  - Translate the UI style and user experiences to align with the specific ones on the OS of the mobile devices



## Thanks!