



Software Development Seminar

Sony Computer Entertainment Inc.



Introduction to the PlayStation BB Navigator and Development Techniques



Agenda

- **What is the PlayStation BB?**
- **What is the PlayStation BB Navigator?**
- **Introduction to PlayStation BB Navigator functions**
- **Overview of PlayStation BB Navigator online content development**
- **Developing PlayStation BB Navigator PSML pages**
- **Debugging PlayStation BB Navigator PSML pages**



1. PlayStation BB Features



Play network-compatible games

Download and watch movies over the network

Download and play games over the network

Download and view graphics over the network

Browse channels offered by game software companies

Browse channels offered by participating Internet service providers



2. What is the PlayStation BB Navigator?



3. Introduction to PlayStation BB Navigator Functions



3.1 PlayStation BB guide

3.2 Channels

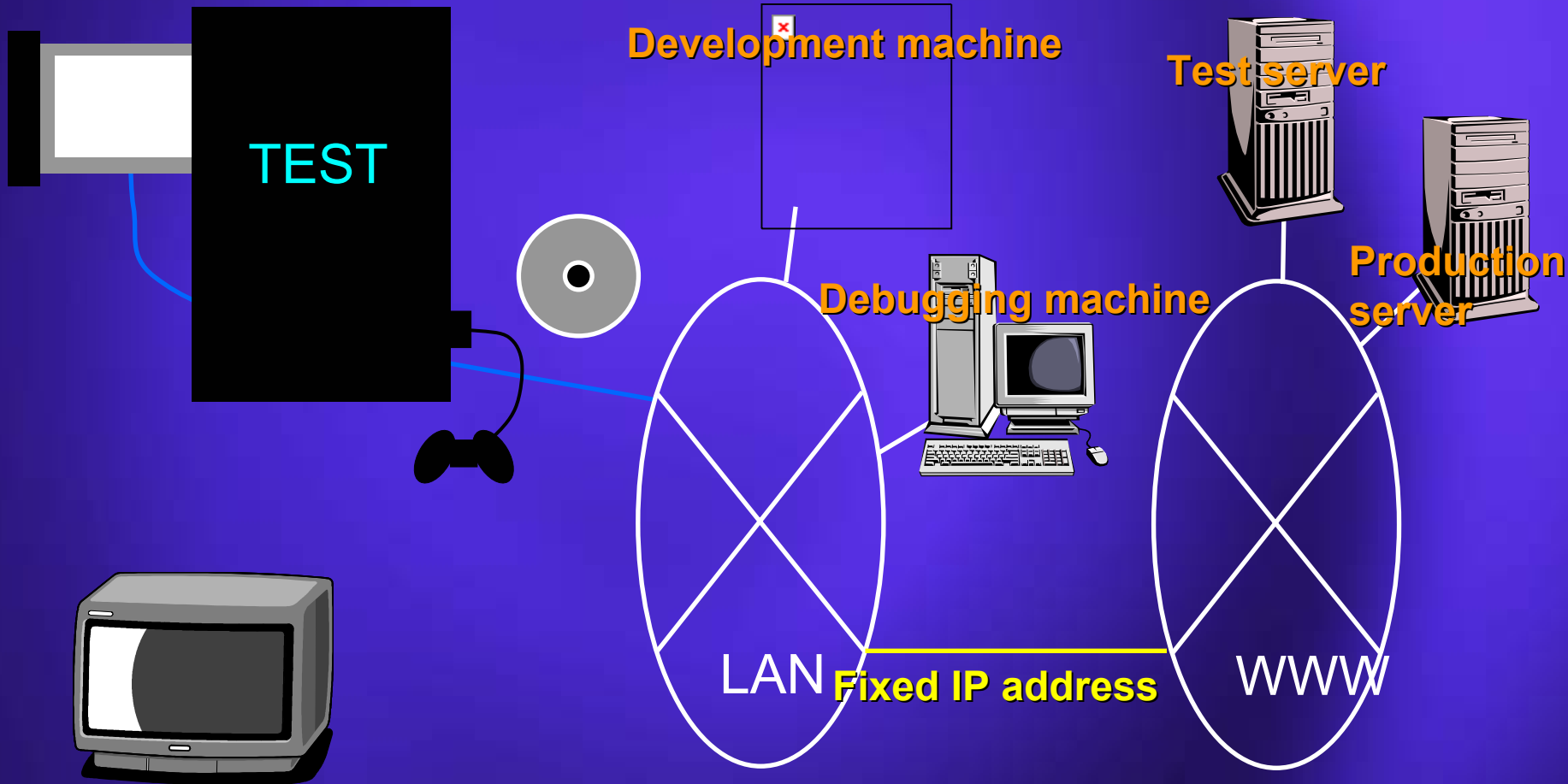
3.3 Network providers

3.4 Various settings



4. Overview of PlayStation BB Navigator Online Content Development

4.1 Required equipment



4. Overview of PlayStation BB Navigator Online Content Development

4.2 Required software

- **PlayStation BB Navigator installer for development**
- **PlayStation BB Navigator startup disc for development**
- **PSML Page Development Tool Release 1.0**



4. Overview of PlayStation BB Navigator Online Content Development

4.3 Steps required to prepare the development environment

== Client Tool for PSML Page Development (bndev) ==

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- (1) **Develop PSML page plan proposal**
- (2) **Download**
- (3) **Install**
- (4) **Set up the network**
- (5) **Prepare the development environment**



4. Overview of PlayStation BB Navigator Online Content Development

4.4 Structure of a PSML page

- (1) PSML file
- (2) Scripts
- (3) Resources

reptex.xml

```
<?xml version="1.0" encoding="UTF-8"?>  
<RESOURCE version="1.0" xmlns="http://www.scei...  
  <SCRIPT id="main" src="reptex" type="binar...  
  <IMG id="base0000">images/earth128.png</IMG>  
  <IMG id="cursor00">images/cursor.png</IMG>  
</RESOURCE>
```

reptex.amx(bnx)

```
main()  
{  
  .....  
}
```



cursor.png

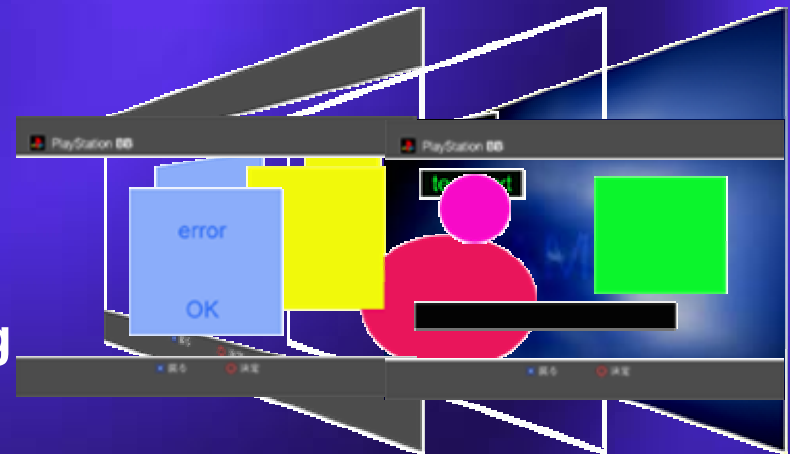


earth128.png

4. Overview of PlayStation BB Navigator Online Content Development

4.4 Structure of a PSML page

- Specify scripts and URIs of resources such as images
- Use XML description format to describe one window
- Window types are MainWindow, BGWindow, and FGWindow
- The drawing order is
 - BGWindow
 - MainWindow
 - FGWindow
- FGWindow is for system use
- MainWindow has page switching function



4. Overview of PlayStation BB Navigator Online Content Development

4.4 Structure of a PSML page

- **PlayStation BB Navigator state management**
- **Animation of drawing objects**
- **Sound processing**
- **Based on Small, a free scripting language**
- **Can easily and safely customize the GUI and animations**
- **Simplifies processing that tends to be complex when using a realtime API**



4. Overview of PlayStation BB Navigator Online Content Development

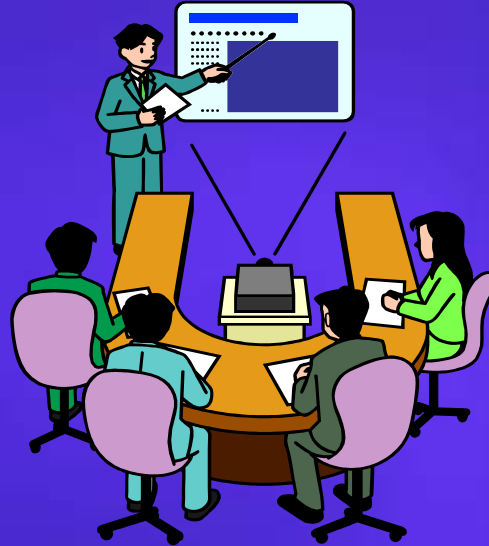
4.4 Structure of a PSML page

- Images to be set for drawing objects ... TIM2, JPEG, PNG
- PSML page original sounds ... SQE, HDE, BDE
- Images to be downloaded ... TIM2, JPEG, PNG
- Movies to be downloaded ... PSM



5. Developing PlayStation BB Navigator PSML Pages

5.1 Create PSML page plan, structure, design, etc.



- How will the PSML page appeal to users?
- Maintain continuity
- Does it fit the company's image?
- Be careful from the planning stage



5. Developing PlayStation BB Navigator PSML Pages

5.2 Designing the PSML page



- Place objects in MainWindow or BGWindow
- Object image
- Animation method
- PSML page original sound



5. Developing PlayStation BB Navigator PSML Pages

5.3 Constructing PSML files and creating scripts

(1) PSML file

```
<?xml version="1.0" encoding="UTF-8"?>
<RESOURCE version="1.0" xmlns="http://www.scei.co.jp/bn/2002/" screen_h="480">
  <SCRIPT id="main" src="whatnew" type="binary/small"/>
  <SCRIPT id="list" src="list" type="binary/small"/>
  <TEXT id="Infomation" value="New Information"/>
  <IMG id="ShopsBG" src="texture/ShopsBG8.png"/>
  <IMG id="ShopsBGA" src="texture/ShopsBGA.png"/>
  <IMG id="ShopsBGB" src="texture/ShopsBGB.png"/>
  <LINK id="link_0" href="page02.xml"/>
  <LINK id="link_1" href="page03.xml"/>
</RESOURCE>
```

- Character encoding is UTF-8, and no BOM (Byte Order Mark)
- Specify the first line as stipulated
- Specify the RESOURCE tag as the root tag
- The extension is .xml



5. Developing PlayStation BB Navigator PSML Pages

5.3 Constructing PSML files and creating scripts

(2) Scripts

- **Scripts conform to the Small language**
- **The script language style is a subset of C**
- **Script files have a .sma extension**
- **Headers have a .inc extension**
- **Scripts cannot be run directly**
- **They must be compiled with the Small Compiler**
- **Compiled scripts have a .amx extension**
- **Encrypted scripts have a .bnx extension**



5. Developing PlayStation BB Navigator PSML Pages

5.3 Constructing PSML files and creating scripts

(3) Standard parts library

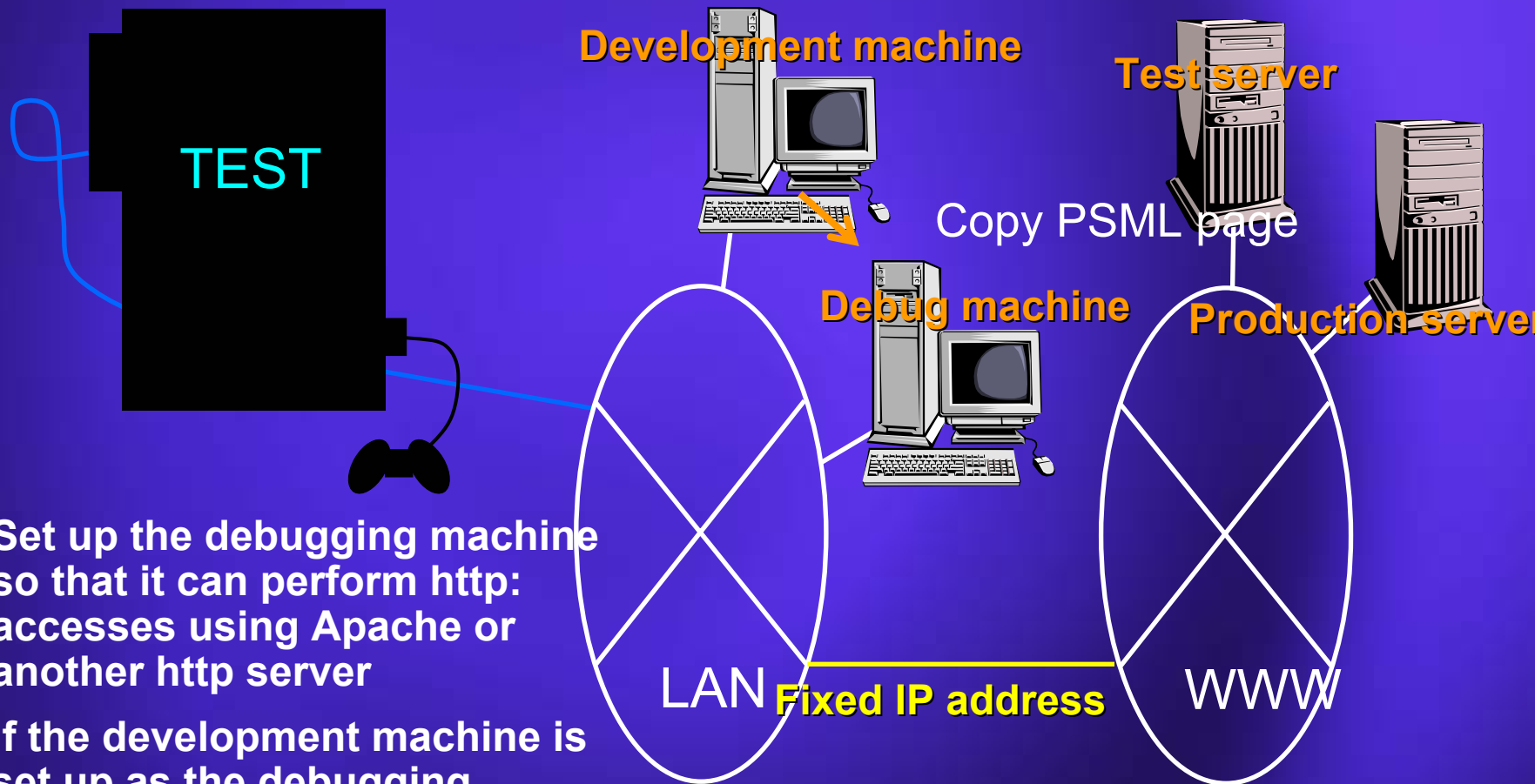


- Only create PSML file and resources
- Actual contents are created visually by creating a web page with HTML
- Library script source code is publicly available
- The library can also be customized



5. Developing PlayStation BB Navigator PSML Pages

5.4 Upload required data to a server that supports http:

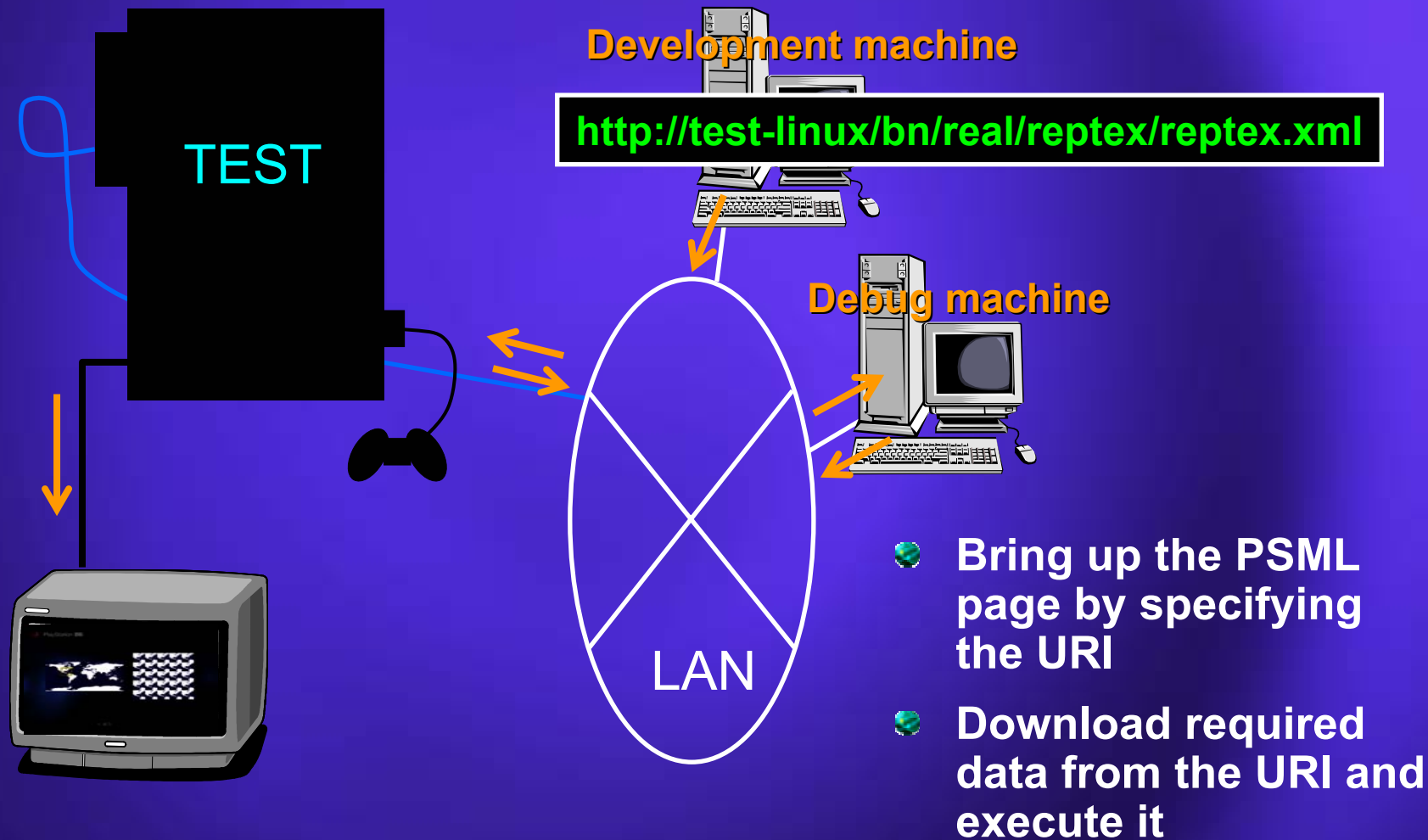


- Set up the debugging machine so that it can perform http: accesses using Apache or another http server
- If the development machine is set up as the debugging machine, the effort involved in moving data can be eliminated



5. Developing PlayStation BB Navigator PSML Pages

5.5 Verify operation using the development PlayStation BB Navigator



5. Developing PlayStation BB Navigator PSML Pages

5.5 Verify operation using the development PlayStation BB Navigator

How to browse a PSML page on the development PlayStation BB Navigator

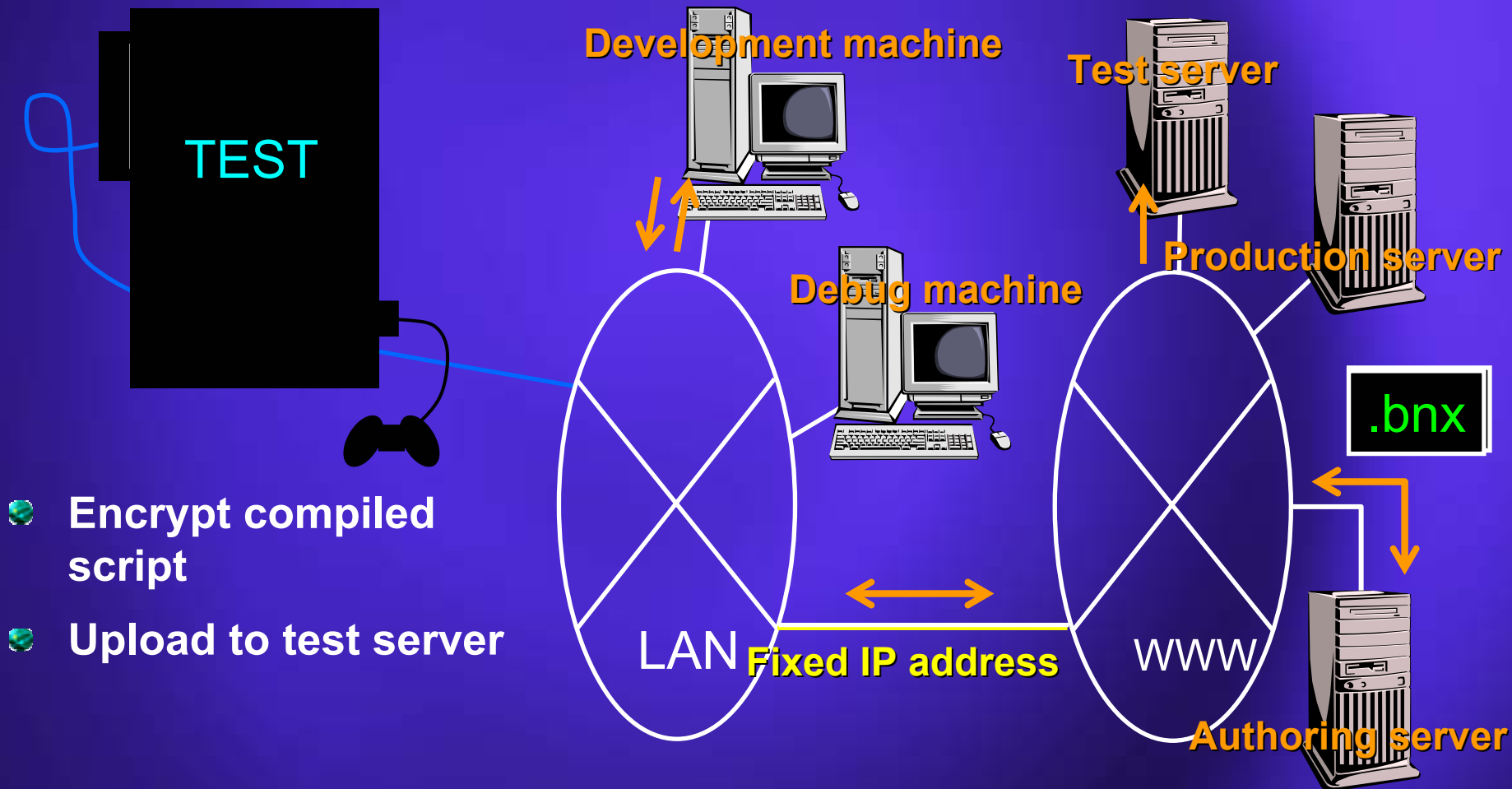
- From Top Menu => Development Tool Setup by selecting "Enter URI"
- From development machine by pressing SELECT button + START button
- From a menu that was temporarily registered to a channel

Demonstration



5. Developing PlayStation BB Navigator PSML Pages

5.6 Upload to test server

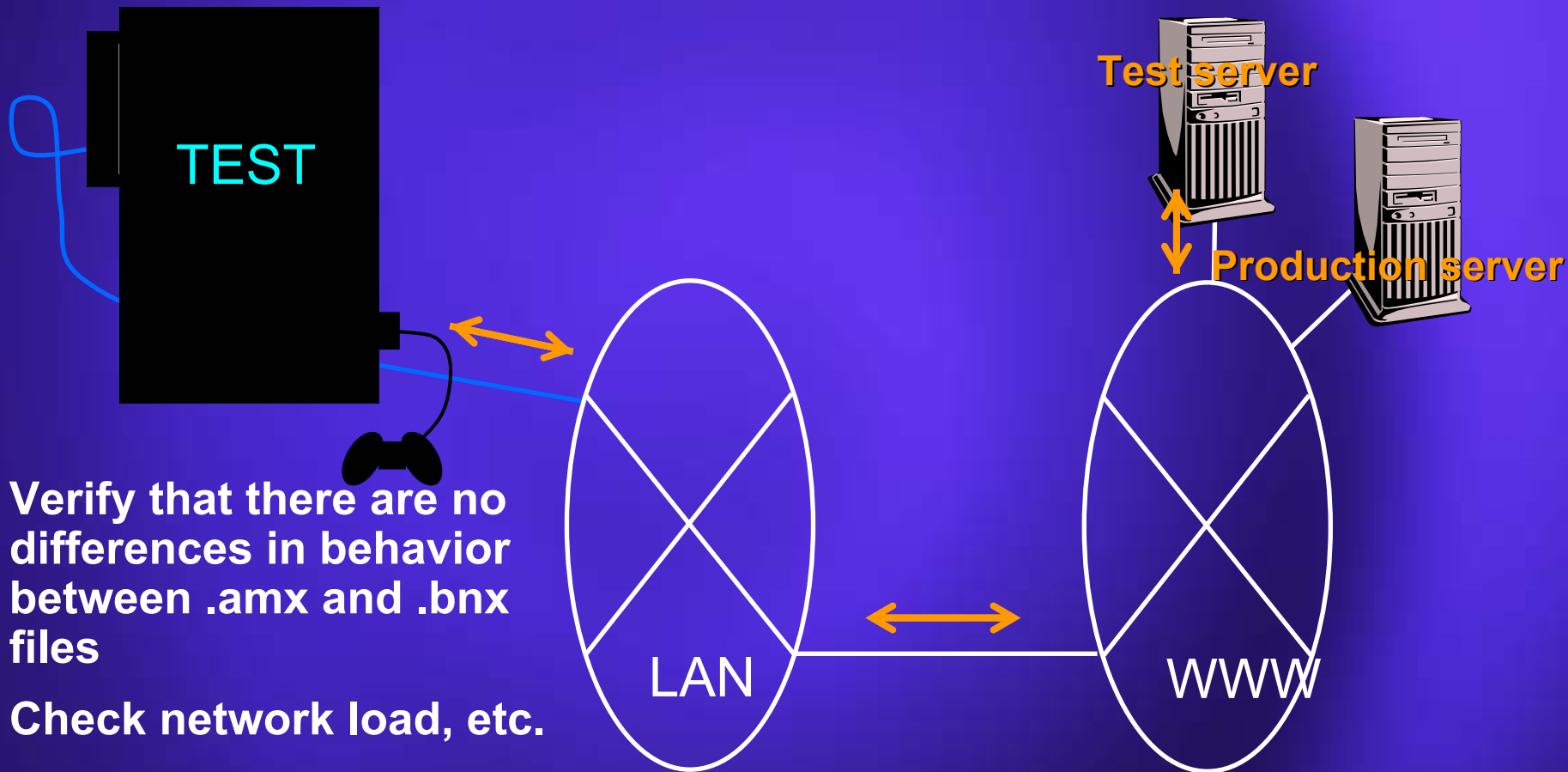


- Encrypt compiled script
- Upload to test server



5. Developing PlayStation BB Navigator PSML Pages

5.7 Debug using the test server



- Verify that there are no differences in behavior between .amx and .bnx files
- Check network load, etc.
- Always debug using the test server

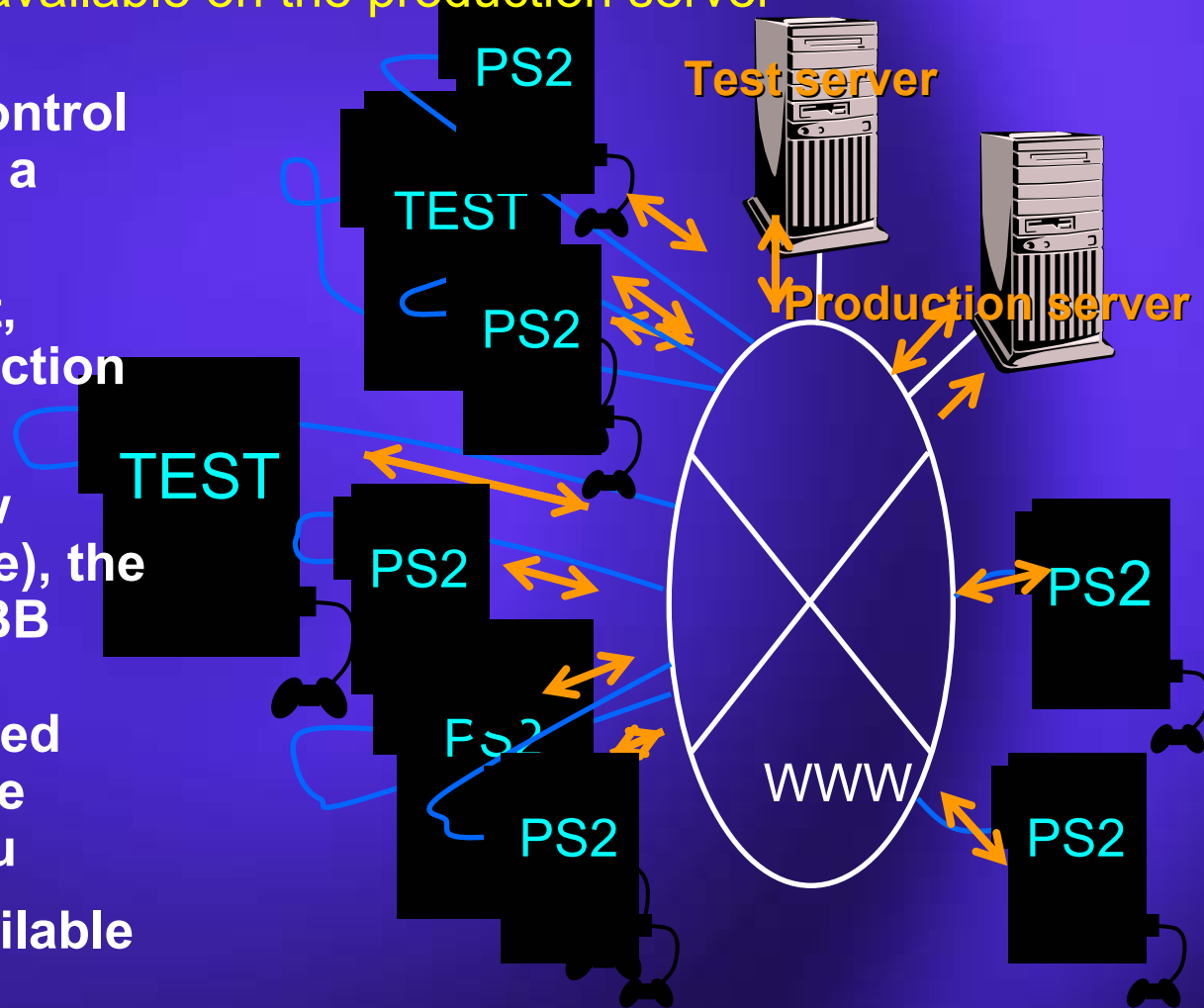


5. Developing PlayStation BB Navigator PSML Pages

5.8 Perform quality control check on the test server

5.9 Make it publicly available on the production server

- Perform a quality control check equivalent to a master check
- If no problems exist, upload to the production server
- When there is a new channel (PSML page), the user's PlayStation BB Navigator is automatically updated from SCEI to add the channel to the menu
- Make it publicly available to users



6. Debugging PlayStation BB Navigator PSML Pages

6.1 debugmenu

- Profile bar
- Memory usage area list
- Object hash table list
- Script information

Demonstration



6. Debugging PlayStation BB Navigator PSML Pages

6.2 Script debugging functions

- Perform single-step execution while viewing source code
- Set breakpoints by line number or function name
- Watch variables
- Display listing from current line of source code
- Clear file list

Demonstration





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