Embedding and Deep Embedding of IDS 11

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Session C02

Embedding and Deep Embedding of IDS 11

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Who am I?

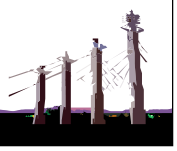
- **I am part of the IBM SWG Channel Technical Sales organization in Germany**
  - Focus on IDS enablement for business partners, but also IM brand focal point in the CTS team
  - Lots of IDS 11 / Mach 11 related enablement activities like one-day technical Cheetah workshops since February 2007 and two-day IDS 11 technical deep dives
  - I am currently involved with IDS virtual appliances and IDS on Mac OS
- **Co-author of a few IBM Redbooks...**
  - IDS/WebSphere, 4GL/EGL, IBM Data servers/SOA, IDS 10 and IDS 11
- **IDS11ToGo is a ‚skunkworks project', primarily done in my free time... ☺**
- **I joined Informix in 1989...**
  - Tech Support → Advanced Support → 1st SAP/Informix project manager → ATG (manager) → CTO group (Munich manager)

Agenda

- Why Use IBM Informix Dynamic Server (IDS)?
- Prepare for IDS Embedding
- Install IDS / Footprint Customization
- Configure IDS
- Run and Monitor IDS
- Upgrading
- Virtual Appliances and IDS 11
- Summary

Why Use IBM Informix Dynamic Server?

- **Because it works for you!**
  - It is effective.
  - It performs well.
  - It is easy to embed.
  - It fits in small spaces.
  - It works well with both large and small databases,
    - And with growing databases that start small and end up big.
  - It is mature and reliable.
  - It works on the platforms you need it to work on.



What Makes IDS 11 So Easy to Embed?


Zero Admin


Secure


Silent Custom Install


Invisible DB


Small Footprint


Multiple API, SQL


High Performance


Self-tuning

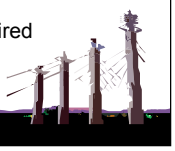
Zero Down Time

Scenario 1: Embedding for Enterprise

- **Application framework developed by a business partner or by the customer that will use IDS as the datastore**
  - Minimal exposure of database to the ultimate user
- **The main features of providing IDS for this space are:**
  - Reliability
  - Performance and Scalability
  - Low Management
  - Keep up with HA, Performance, SQL features, and features provided by competition
  - Middleware is everywhere – (ODBC/JDBC support)
  - Backup and Restore would be an operation via the application
  - Autonomic Computing: Minimal administration, Dynamic Tuning, zero downtime

Scenario 2: Embedding for SMB

- **IDS is packaged along with an ISV product**
  - The database not visible to the end user
- **Required IDS features include:**
  - Customers could/should be unaware of IDS installation underneath the application
  - Ease of embedding IDS within the software is important (e.g. silent and customizable installation)
  - Autonomic Computing:
    - Zero Administration is a high priority
    - Self Tuning of any configurable value is important
    - Dynamic Administration (Changing a configurable value of the database without any downtime)
  - Administration APIs: Application should be able to expose database administration capabilities to the user easily
  - Low footprint: both installation disk space and memory footprint
  - Configurable Install: Enable ISVs to embed and install just the required components



Scenario 3: (Deep) Embedding for OEM Solutions

- **Real small installations that require high availability and reliability with very minimal overhead costs**
- **Requirements for that scenario include:**
  - IDS should be invisible
  - Low everything – maintenance, visibility, administration & tuning
  - All opportunities to automate a task by the technology provider will be important
  - Site of deployment will NOT have any administration capability
  - Typically low volume of data [50-60 GB]
  - Very long application cycles. Upgrade of applications and IDS can be rare

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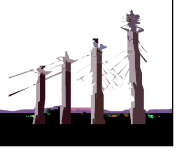
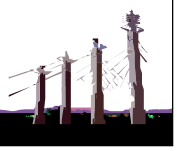


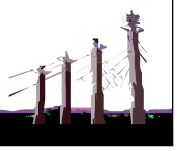
Planning

- **The crucial step!**
  - It affects all the steps that follow.
- **There are many issues to worry about**
- **Is IDS the only DBMS your application uses?**
  - Does your application have to work with other DBMS?
  - Concurrently with IDS, or just at other customer sites?



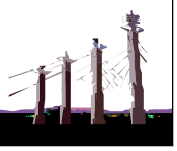
Planning

- Will your application use one IDS instance or many?
- Will your application use on database or many?
- Will other databases be allowed in an instance?
- Will other tables be allowed in a database?
- Namespace controls?
- Database logging modes?



Planning

- Which users or groups will administer the application?
  - Administering IDS
  - Backup and restore
    - Checking backups?
- Who will own database objects?



Planning Development

- Which programming languages are to be used?
- Which tool sets?
- Which platforms?
- Which platform is used for development?
- Is the deployment on the same platform?
- Which browsers should be supported?

Planning Installations

- How is the application installed?
  - By whom?
  - Is IDS a separate install from the application?
  - Who provides the information about the resources for IDS?
  - Is the application on the same CD as IDS?
  - Is the system installed onto new hardware?

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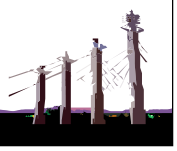
Installing the Application

- Installing IDS is only part of the story.
- The application must be installed too.
  - And the other supporting packages.
- You may have files to remove.

Installing the Application

- **Generate checksums on installed software**
  - Use MD5 or SHA1 values.
  - Save them in a file.
  - Generate a checksum for the file of checksums.
- **Record the correct permissions too**
  - Owner, group and mode.
- **Periodically check that the files are still valid:**
  - Checksums.
  - Permissions.
  - Additional files or directories.
  - Missing files or directories.



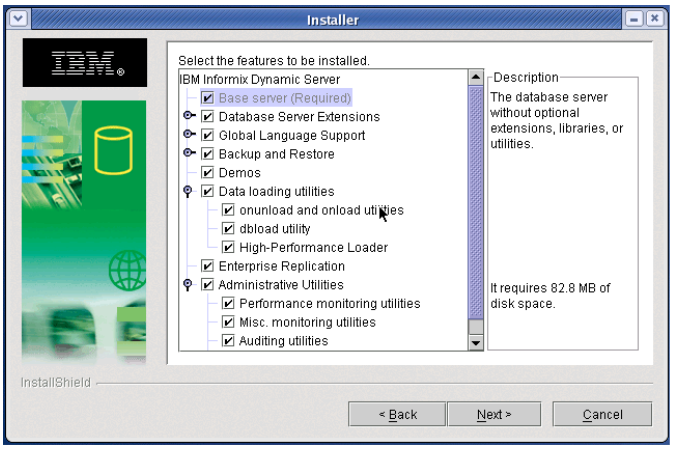
Installing IDS

- Install IDS separately from the application
  - INFORMIXDIR should not be cluttered.
  - It is easier to upgrades if you can replace it.
- INFORMIXDIR should not be a home directory
  - Not even for user informix.
- Consider installing I-Connect separately from IDS
  - Allows separate upgrades.
  - Allows better separation of privileges.
  - Do not install ClientSDK on a production machine.
    - Unless your production server is also the development machine.

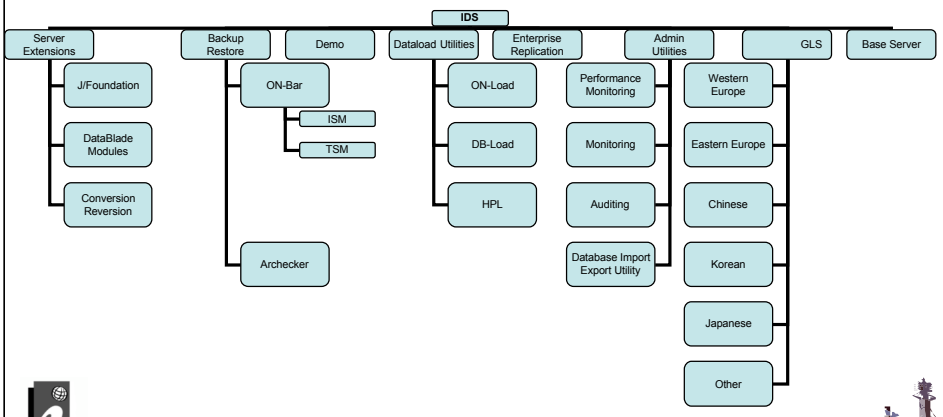
Installing IDS 11: The Deployment Wizard

- Is supported in all the three installation modes
- Linux/Unix: Console (default) , GUI and silent mode
- Windows: GUI and Silent mode
- The feature is available for all LUW platforms that currently support ISMP based (Java) installation and Windows platforms
- The ability to pick and choose features to be installed is available only via the 'custom' install option (in console, GUI and silent mode)
- All IDS features that have been broken down have a short description and an estimated size on disk
- The deployment feature will allow users to record the response of their installation in a simple ASCII file that can then be used for all future silent installs.

Installing IDS 11: The Deployment Wizard

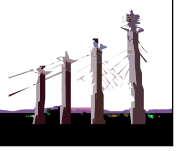


The Deployment Wizard: Component Breakdown



IDS 11 Install – Deployment Wizard – Best Practices

- Use the Java-based for best functionality
- To add features to an existing installation re-launch installserver
  - Can use GUI, console or the silent install to add components
  - On Windows use setup.exe
- $INFORMIXDIR/uninstall_ids to uninstall
  - Do not manually remove files, always use the uninstall wizard
- Use of a new IDS version when upgrading/adding one component will upgrade all installed components

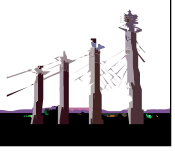


Installing IDS 11: Silent Install

- Each product has its own installation ".ini" file which controls component installation for that product
- Can be viewed after extraction and before installation

DO NOT ALTER THESE FILES OR INSTALLATION WILL FAIL!

- Server + all options
  - $expand_dir/bundle.ini
- Server only
  - $expand_dir/SERVER/server.ini
- CSDK only
  - $expand_dir/CSDK/
    WINDOWS/Setup.ini
    UNIX/csdk.ini
- IConnect only
  - $expand_dir/ICONNECT/
    WINDOWS/Setup.ini
    UNIX/conn.ini



Creating the silent install driver, option #1

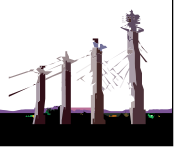
- Make a COPY of and rename the appropriate .ini

```
cp bundle.ini my_silent.ini
```

- Modify the copy's settings as needed
- Use the copy .ini as a parameter to the installation process

```
install_ids -silent [-acceptlicense=yes]
    -options my_silent.ini [other parameters]
```

- Other command strings:
  - installserver
  - installconn
  - installclientsdk



Creating the silent install driver, option #2

- Record an installation so it can be replayed on other servers
  - Windows: `setup.exe -r -f1C:\temp\response_file.ini -f2c:\temp\install.log`
  - Linux/Unix: `installserver [-gui] -record response_file.ini`
    `ids_install [-gui] -record response_file.ini`
- Use the "recording" in the silent install process

```
install_ids -silent [-acceptlicense=yes] -options
   response_file.ini [other parameters]
```

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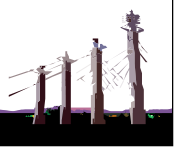
Configuring IDS

- **Building the initial instance of IDS:**
  - **Build from first principles**
    - Provide customized ONCONFIG file
    - Run oninit -iy
  - **Utilize the IDS 11 SQL Admin API**
    - Create DBSPACEs and CHUNKs from scratch
    - Create IDS built-in Scheduler entries for routine tasks
    - Reduces the need for OS specific scripts
  - **Alternatively**
    - Recovery from level 0 archive
    - Direct disk image copying



Configuring IDS 11: The SQL Admin API

- A set of User Defined Routines (UDRs) to administer the Informix database server.
- The major categories of administration include:
  - Space Management.
  - Configuration Management.
  - Routine task maintenance.
  - System Validation (oncheck functionality).

- **Feature Benefits:**
  - SQL Based Administration.
  - Remote Administration.
  - Tracking of command execution and results in a system table.

Configuring IDS 11: The Built-in Database Scheduler

- Ability to schedule SQL, Stored procedures or UDR's.
- The schedule entities are called "tasks".
- There are different types of tasks:
  - Tasks.
  - Sensor.
  - Startup Task.
  - Startup Sensor.
- Tasks are driven by the data inside a table called ***ph_task.***
- Sensors are a specialized task designed to collection information:
  - Easy to add and configure.
  - Collect information and stores it in database tables.

IDS Admin API and automated configurations (1)

```
database sysadmin;

{ **** Create a table of dbspaces which are to be created ****}
create table dbspaces
        (
        type            varchar(255),
        dbspace         varchar(255),
        path            varchar(255),
        offset          varchar(255),
        size            varchar(255)
        );

insert into dbspaces values ("sbspace", "sbspace", "$INFORMIXDIR/CHUNKS/sblob1", 0 , "50 MB" );
insert into dbspaces values ("dbspace", "dbspace1", "$INFORMIXDIR/CHUNKS/dbspace1", 0 , "50 MB" );
insert into dbspaces values ("dbspace", "dbspace2", "$INFORMIXDIR/CHUNKS/dbspace2", 0 , "50 MB" );
insert into dbspaces values ("dbspace", "physdbs", "$INFORMIXDIR/CHUNKS/physdbs", 0 , "50 MB" );
insert into dbspaces values ("dbspace", "logdbs", "$INFORMIXDIR/CHUNKS/logdbs", 0 , "50 MB" );
insert into dbspaces values ("tempdbspace", "tempdbs", "$INFORMIXDIR/CHUNKS/tempdbs", 0 , "10 MB" );
insert into dbspaces values ("blobspace", "bspace1", "$INFORMIXDIR/CHUNKS/blobdbs", 0 , "50 MB" );

{ **** Create a table of chunks which are to be created **** }
create table chunks
     (
     dbspace       varchar(255),
     path          varchar(255),
     offset        varchar(255),
     size          varchar(255)
     );

insert into chunks values
("dbspace1", "$INFORMIXDIR/CHUNKS/chunk",0 , "10 MB" );
insert into chunks values
("dbspace1", "$INFORMIXDIR/CHUNKS/chunk2",0 , "10 MB" );
```

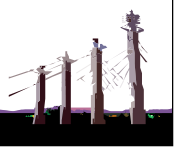
IDS Admin API and automated configurations (2)

```
{****   Create all the dbspaces ****}
SELECT task( "create "|| type , dbspace, path, size, offset)
    FROM dbspaces;

{****   Add the chunks to the dbspaces ****}
select task("add chunk", dbspace, path, size, offset) from chunks;

{****   Add 3 logical logs ****}
execute function task("add log","logdbs","5 MB",3,"true");
execute function task("checkpoint");

{****   Drop all logical logs in the rootdbs but the current log ****}
select task("drop log", number)
     from sysmaster:syslogfil
     where chunk = 1 and sysmaster:bitval(flags,"0x02")==0;
execute function task("checkpoint");

select task("onmode", "l") from sysmaster:syslogfil
          where chunk = 1 and sysmaster:bitval(flags,"0x02")>0;
execute function task("checkpoint");

{****   Drop the current logical log in the rootdbs ****}
select task("drop log", number) from sysmaster:syslogfil where chunk = 1;


execute function task("alter plog","physdbs","49 MB");

execute function task("checkpoint");
```

Configuring IDS

Don't forget (if required):

- HDR configuration.
- ER configuration.
- ON-Bar configuration.
- PAM configuration.
- SNTP configuration.
- SNMP configuration.



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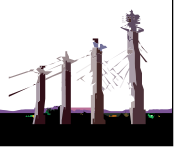
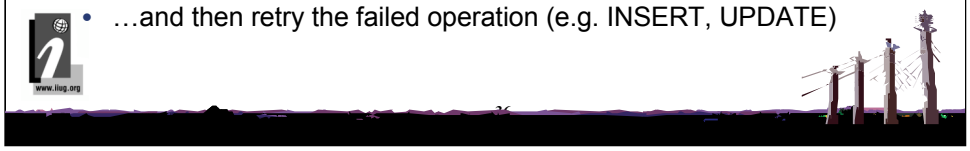
Running IDS

- **In use, IDS 11 looks after itself a lot**
  - Many parameter are self tuned
  - Auto adjust of LRU parameters and Checkpointing behaviour
  - Dynamic AIO VP adjustments
  - Automatic shared memory adjustments
- **Routine cleanup (file system)**
  - Trim log files
  - Delete unwanted shared memory dumps
- **Standardized boot sequences**
  - Ensure a consistent environment for the server.



Running IDS: Avoid out of space situations

- **Provide enough room to grow upfront in the defined DBSPACES**
  - Some tables in the ROOTDBS can grow also
  - Provide temporary DBSPACES
- **Create TASKs to cleanup staging/reporting tables in regular intervals**
- **Semi-Automatically add new chunks on-the-fly via the Admin API**
  - Modify your application to catch SQL error -271 and ISAM error -131
  - If that error occurs programmatically execute
    - `execute function sysadmin@<dbname>:task("add chunk", <dbspacename>, <chunkname>, <chunksize>);`
  - …and then retry the failed operation (e.g. INSERT, UPDATE)

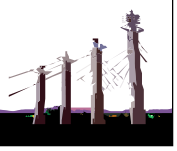


Automatically starting IDS (Linux/Unix)

```
#!/bin/sh
INFORMIXSERVER=ids11demo
INFORMIXDIR="/opt/informix"
ONCONFIG=onconfig.ids11demo
PATH=${INFORMIXDIR}/bin:${PATH}
export INFORMIXSERVER INFORMIXDIR ONCONFIG PATH
if [ $# -lt 1 ]
then
     echo "Usage: $0 {start|stop}"
else
     case "$1" in
     'start')
            if [ `$INFORMIXDIR/bin/onstat 2>&- | grep -c On-Line` -ne 1 ]
            then
                        echo -n "Starting Informix Dynamic Server V11..."
                        $INFORMIXDIR/bin/oninit
                        echo "done"
            fi
            ;;
     'stop')
            if [ `$INFORMIXDIR/bin/onstat 2>&- | grep -c On-Line` -eq 1 ]
            then
                        echo -n "Shutting down Informix Dynamic Server V11..."
                        $INFORMIXDIR/bin/onmode -ky
                        echo "done"
            fi
            ;;
     *)
            echo "Usage: $0 {start|stop}"
     ;;
esac
fi
```

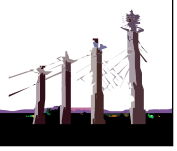
Monitoring IDS

- Standard scripts for reporting IDS problems
  - alarmprogram.sh:
    - For general purpose alarms and problem reporting.
    - Fairly capable but very big.
    - Inevitably needs customizing.
  - evidence.sh:
    - For taking evidence of what happened when a VP crashed.
    - Fairly big.
    - Seldom needs customizing.
- Extensive command line tools
  - For monitoring and administering the server.

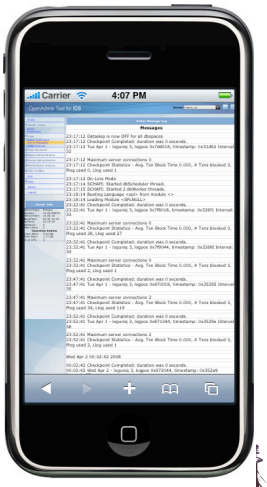


Monitoring IDS

- Automatic Monitoring and Corrective Actions (IDS 11+)
  - Benefits (recap):
    - SQL Based Administration
    - Remote Administration
    - Tracking of command execution and results in a system table
  - Supported Functionality for Automatic Monitoring:
    - SQL Tracing (Query Drill Down)
    - Specialized Tasks (Sensors) to collect information
    - Alert System
    - Sysmaster, Sysadmin Databases provide extensive statistics
    - IDSAdmin Tool

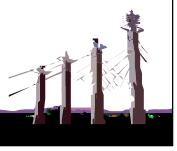


Remote Monitoring: OpenAdmin Tool for IDS



Monitoring IDS with the Query Drill Down Feature

- Questions DBAs like to ask:
  - How long did SQL statements take?
  - How many resources of each category did a statement take?
    - Disk I/O
    - Memory
    - CPU
  - How long and how many times did we wait on each resource?
    - Locks
    - Disk I/O



Monitoring IDS with the Query Drill Down Feature

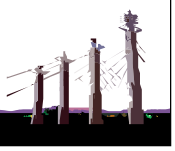
Controlling SQL Query Drill Down:

- ONCONFIG variable SQLTRACE
  - Level =[off,low,med,high]
  - Ntraces=[number of traces]
  - Size=[size of each trace buffer]
  - Mode=[global|user]

```
SQLTRACE level=low,ntraces=2000,size=1024,mode=global
```

- Turn off SQL Tracing for session id 147

```
execute function task("SET SQL USER TRACING OFF",147);
```



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```
SQLTRACE level=low,ntraces=2000,size=1024,mode=global
```

- Turn off SQL Tracing for session id 147

```
execute function task("SET SQL USER TRACING OFF",147);
```

Monitoring IDS with the Query Drill Down Feature

- Using onstat commands
  - onstat –g his <# entries>

```
informix@linux:~$ onstat -g his 1

IBM Informix Dynamic Server Version 11.10.UB5TL -- On-Line -- Up 00:04:58 -- 303
64 Kbytes

Statement history:

Trace Level                 Low
Trace Mode                Global
Number of traces            2000
Current Stmt ID                9
Trace Buffer size           2024
Duration of buffer            40 Seconds
Trace Flags           0x00001611
Control Block         0x456a8010


Statement # 9:      @ 0x456a85ac

 Database:          0x100160
 Statement text:
  select * from customer c, orders o, items i, stock s where c.customer_num
    = o.customer_num AND o.order_num = i.order_num AND i.manu_code =
    s.manu_code AND i.stock_num = s.stock_num AND c.customer_num = 104 order
    by i.item_num;

 Iterator/Explain
 ================
    ID   Left  Right   Est Cost   Est Rows   Num Rows     Type
     5      0      0          1          4          4     Index Scan
     6      0      0          1         67          4     Index Scan
     4      5      6          4         12          9     Nested Join
     7      0      0          1         74          1     Index Scan
     3      4      7          9          3          9     Nested Join
     8      0      0          1          3          1     Index Scan
     2      3      8         14         11          9     Nested Join
     1      2      0          1          9          9     Sort

 Statement information:
  Sess_id  User_id  Stmt Type          Finish Time    Run Time
  30       1000     SELECT             16:01:05       0.0027

 Statement Statistics:
  Page       Buffer     Read       Buffer     Page       Buffer     Write
  Read       Read       % Cache    IDX Read   Write      Write      % Cache
  0          100        100.00     0          0          0          0.00

  Lock       Lock       LK Wait    Log        Num        Disk       Memory
  Requests   Waits      Time (S)   Space      Sorts      Sorts      Sorts
  85         0          0.0000     0.000 B    1          0          1

  Total      Total      Avg        Max        Avg        I/O Wait   Avg Rows
  Executions Time (S)   Time (S)   Time (S)   IO Wait    Time (S)   Per Sec
  1          0.0052     0.0052     0.0027     0.000000   0.000000   3352.5075

  Estimated  Estimated  Actual     SQL        ISAM       Isolation  SQL
  Cost       Rows       Rows       Error      Error      Level      Memory
  14         9          9          0          0          CR         33624


informix@linux:~$
```

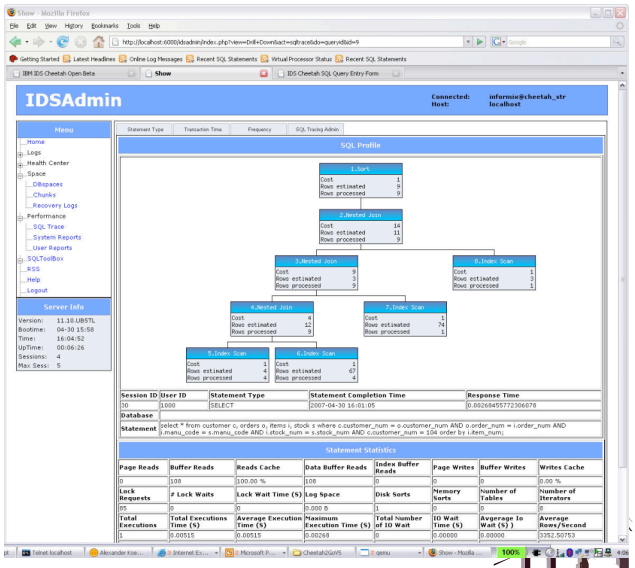
Monitoring IDS with the Query Drill Down Feature

- ...or use a SELECT statement against the sysmaster database

```
informix@linux:~$ dbaccess sysmaster -

Database selected.

> select * from syssqltrace where sql_id = 9;


sql_id              9
sql_address         1164600940
sql_sid             30
sql_uid             1000
sql_stmttype        2
sql_stmtname        SELECT
sql_finishtime      1177941665
sql_begintxtime     1177941665
sql_runtime         0.002684557723
sql_pgreads         0
sql_bfreads         100
sql_rdcache         100.0000000000
sql_bfidxreads      0
sql_pgwrites        0
sql_bfwrites        0
sql_wrcache         0.00
sql_lockreq         85
sql_lockwaits       0
sql_lockwttime      0.00
sql_logspace        0
sql_sorttotal       1
sql_sortdisk        0
sql_sortmem         1
sql_executions      1
sql_totaltime       0.005153528748
sql_avgtime         0.005153528748
sql_maxtime         0.002684557723
sql_numiowaits      0
sql_avgiowaits      0.00
sql_totaliowaits    0.00
sql_rowspersec      3352.507536973
sql_estcost         14
sql_estrows         9
sql_actualrows      9
sql_sqlerror        0
sql_isamerror       0
sql_isollevel       2
sql_sqlmemory       33624
sql_numiterators    8
sql_database        <None>
sql_numtables       0
sql_tablelist       None
sql_statement       select * from customer c, orders o, items i, stock s where c.
                    customer_num = o.customer_num AND o.order_num = i.order_num A
                    ND i.manu_code = s.manu_code AND i.stock_num = s.stock_num AN
                    D c.customer_num = 104 order by i.item_num;

1 row(s) retrieved.

>
```

Monitoring IDS with the Query Drill Down Feature

- ...or utilize the new OpenAdmin Tool for IDS



Monitoring with the built-in Database Scheduler

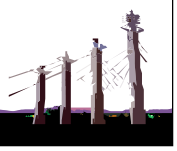
- Use the TASK/SENSOR feature together with the Alert system
  - Create TASKs to monitor the usage of resources
    - DBSPACE utilization
    - Memory usage
  - Create entries in the sysadmin ph_alert table
    - Visualize alerts via IDSAdmin
    - Notify a DBA if required (e.g. via SMS or Email)

Agenda

- Why Use IBM Informix Dynamic Server (IDS)?
- Prepare for IDS Embedding
- Install IDS / Footprint Customization
- Configure IDS
- Run and Monitor IDS
- Upgrading
- Virtual Appliances and IDS 11
- Summary

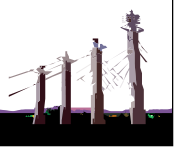
Upgrading

- How will upgrades be done?
  - Send CD or DVD to site for users to upgrade?
  - Send engineer with CD to site to do upgrade?
  - Send data to site over Internet (VPN) connection?
- Plan for minimum time upgrades:
  - Install new software in version-specific location.
  - Configure whatever needs to be configured.
  - Backup what needs to be backed up.
  - Take old system offline.
  - Switch canonical symlink from old system to new system.
  - Restart new system.



Upgrading Over a Network

- Limited bandwidth connections?
  - Critical to minimize data to be sent over wire.
  - Differencing of the data files,
    - Such as message files or locale components.
  - Reducing the amount of software installed.
  - Compressing the data.
    - In general, bzip2 is better than gzip or zip.
    - In terms of compression from gzip and zip are comparable.
    - Both are better than compress.
    - Which is way better than pack.



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What is an (database) appliance?

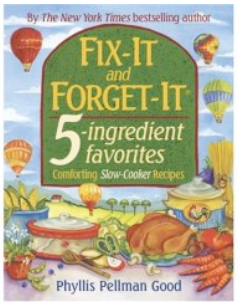
- Two definitions (Source: Wikipedia)...
  - A **software appliance** is a software application combined with just enough operating system (JeOS) for it to run optimally on industry standard hardware (typically a server) or in a virtual machine. Software appliances simplify server applications by minimizing the tasks typically associated with installation, configuration and maintenance.
  - A **virtual appliance** is a minimalist virtual machine image designed to run under Parallels, VMware, Xen, Microsoft Virtual PC, QEMU, Usermode Linux, CoLinux, Virtual Iron, VirtualBox or other virtualization technology. Virtual appliances are a subset of the broader class of software appliances. Like software appliances, virtual appliances are aimed to eliminate the installation, configuration and maintenance costs associated with running complex stacks of software.

What are the advantages of an appliance?

- Easy to install and to operate: „Set it and forget it“
- The appliance can be pre-tuned for the specific type of appliaction
- Portable appliances (e.g. a Web based product catalog) can be easily created
- Can be prepared to run one appliance on different host OS
- Great to showcase the capabilities of an application to customers w/o the need of a time consuming installation

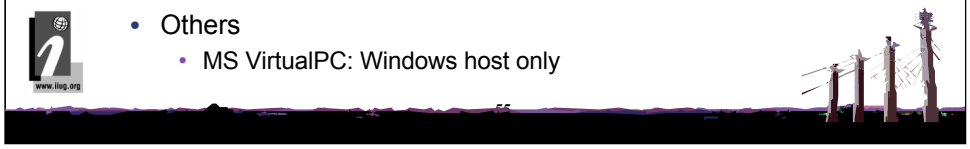
The Building Blocks of a virtual appliance

- **The five ingredients**
  - A virtual machine
  - An small footprint OS
  - A web server
  - IDS 11
  - PHP 5 / PDO_Informix



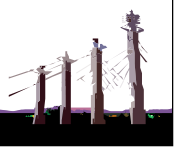
Building Blocks (VM)

- **A virtual Machine for the appliance OS**
  - Allows a real black box concept (OS within OS)
- **Multiple choices**
  - VMWare Workstation/Player
    - Robust, broad acceptance, Linux & Windows hosts supported
  - Xen
    - Very popular on Linux hosts, Fast, may require specific CPUs
  - QEMU
    - Open Source VM, supports a broad range of host & guest OS
    - Can be easily started w/o prior installation
  - Others
    - MS VirtualPC: Windows host only



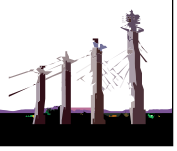
Building Blocks (OS)

- The OS for an appliance should be just enough to run the software application (see definition) → „JeOS“
- Windows could be used, but doesn‘t really fullfill the JeOS requirements (too much overhead)
- Linux is a very good foundation for an appliance
  - Small footprint installations are supported
  - Non GUI environments can be easily setup
  - Low resource requirements (Memory, CPU)
- Choice of Linux distributions
  - Commercial: e.g. Novell SUSE & Red Hat
  - Free: e.g. Debian, Ubuntu, etc.



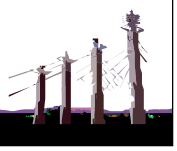
Building Blocks (Web-/App-Server)

- A web server is required to support the OpenAdmin Tool for IDS
- An application server can be helpful for serving e.g. SOA interfaces into the IDS based appliance
- Apache2 is a robust web server
  - Typically bundled with most Linux distributions
  - Simple configuration and integration with PHP
  - Can be enhanced with Tomcat
- WebSphere Application Server Community Edition can be an interesting alternative, but requires additional installation and configuration steps



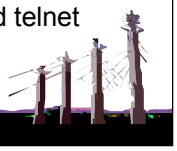
Building Blocks (PHP 5 / PDO_Informix)

- PHP is required for the OpenAdmin Tool for IDS
- Hypertext Preprocessor (PHP) is a powerful and popular server-side scripting language for Web servers
- PHP Data Objects (PDO) is a fast, light and pure-C standardized data access interface for PHP 5.
- PDO_Informix is a robust, native driver for PHP PDO which provides high performance while accessing IDS 11
- PDO_Informix can be obtained as a supported driver through Zend



How to create a virtual IDS Linux appliance

- Choose an appropriate virtual machine (VMware, Qemu, Xen etc.)
- Create an empty virtual disk drive (with room to grow!)
- Install a small footprint Linux distribution within the virtual machine (e.g. Ubuntu JeOS)
- Make sure PHP 5 and Apache2 are installed and configured
- Install/configure IDS 11 and CSDK 3.0
- Download and configure PDO_Informix
- Create and configure the required init.d scripts for IDS and Apache2
- Download, install and configure OpenAdmin Tool for IDS
- Provide external access to the appliance through ftp and telnet



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Summary

- IDS is very embeddable.
  - Small footprint.
  - Easy and automatable installation, configuration.
  - Powerful, scriptable monitoring.
- IDS is very powerful once embedded and easy to maintain.

http://www.ibm.com/software/data/informix


Thank
You