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Safe and Flexible SCF Archive Center Based on Cloud Service

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Overview

Purpose of GBS-SCF

Requirements of SCF Archive Center

KR-SCF Archive Center

System Outline of KR-SCF Archive Center

Web Portal of KR-SCF Archive Center

Conclusion

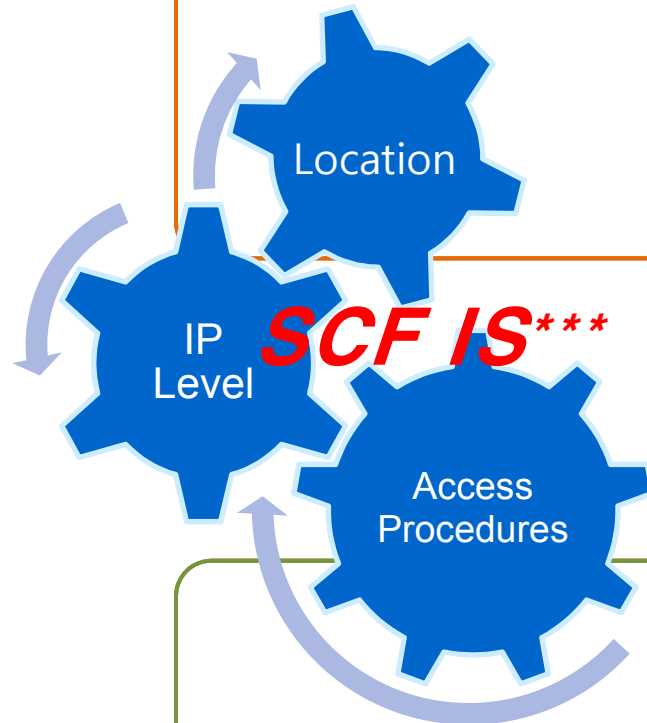
Purpose of GBS-SCF^{*,**}

SCF contains necessary **structural safety information** and keeps it safely throughout the **lifetime of the ship**

AR Holders

Design Transparency

- Information presented
- Practical Access



Adjusting the Balance

Intellectual Property (IP)

- IP Protection
- Access Management

IP Holders

* Goal-Based Standard (MSC 87/5/4), Ship Construction File

** Ralf S. Marquardt (CESA), "Ship Construction File (SCF)", Tripartite 2014, Shanghai, China.

*** Ship Construction File Industry Standards

Requirements of SCF Archive Center



SCF Industry Standards Tier I, II to fulfill IMO* GBS-SCF

- ✓ Application Time: '16.7.1 Contract/ '17.7.1 K/L* / '20.7.1 Delivery
- ✓ Applied Target: Bulk Carrier(BC) and Oil Tanker(OT) of 150 meters in length and above
- ✓ Requirements of SCF Archive Center
 - Provide services throughout ship's lifetime
 - Neutral; Take a nonpartisan stance
 - International service
 - Strict in safekeeping
 - Backup and restore
 - Service in good quality, cost effective
 - Service 24 hours/365 days

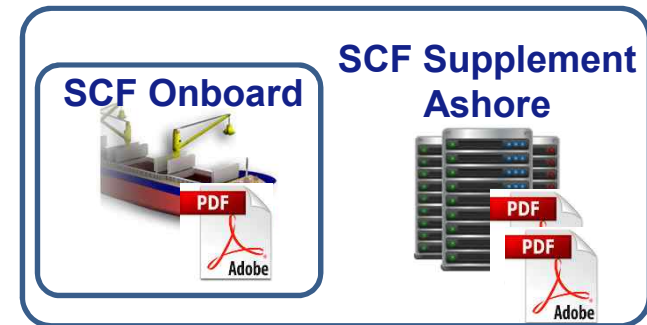
* International Maritime Organization

** Keel Laying

Requirements of SCF Archive Center

- SCF Information

SCF Archive Center



1) SCF Onboard

- All of construction drawing such as Key Construction plan
- T & S booklet, Loading manual, etc.
- SCF-Specific (Documents to be developed specifically to meet the requirements of GBS)

2) SCF Supplement Ashore

- Lines plan
- Yard plans (a full set of structural drawings): include scantling information of all structural members
- Strength calculation & Fatigue life calculation

Requirements of SCF Archive Center

- Operation of SCF Archive Center



- 3) SCF Storage Format: compatible standardized **digital file** (e.g.: pdf) [Ref 3.4]
- 4) Preparation of SCF [Ref 4.1]
 - Shipbuilder→ Shipowner (SCF Onboard 2 sets)
 - Shipbuilder→ SCF Archive Center (SCF Onboard/ SCF Supplement Ashore 1 set each)
- 5) Provide **valid procedures for safekeeping and access** of SCF [Ref 4.2, Annex-2, 5.2]
- 6) When a ship is repaired, converted, or modified, SCF (previous/new) should be kept along [Ref 4.4]
- 7) Provide **browser software** to view SCF Information
- 8) Obtain ISO/IEC 27001/27002 Cert. regarding to Information Security Management Systems (ISMS)

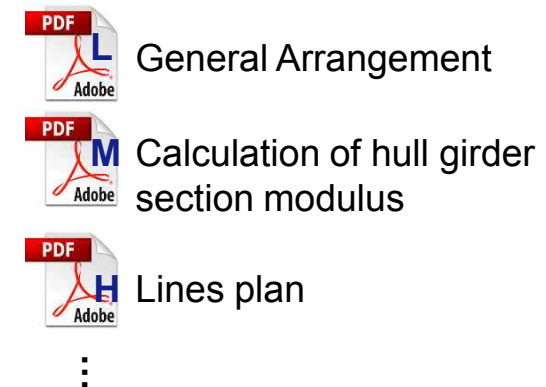
Requirements of SCF Archive Center

- IP Level of SCF Information (1/3)

[Ref table 2]

1) **Low, Medium, High**

- Classified by importance of IP [Ref 3.3]
- Differentiated access procedures for each IP Level [Ref A2.3]



2) Modification of IP Level

- Medium IP Level documents are automatically **downgraded to Low** IP Level upon **10 years after** the delivery of the Ship unless the Shipowner and IP-Holders mutually agree otherwise [Ref 3.3]
- High Level remain at High IP Level over time [Ref 3.3]

Requirements of SCF Archive Center

- IP Level of SCF Information (2/3)

Table 2: Standard IP Levels and Storage Locations

IP level	Document name used in Industry Standards	Storage location
Low	Capacity plan	on board ship
	Loading manual	on board ship
	Trim & stability booklet	on board ship
	Loading instrument instruction manual	on board ship
	Operation and maintenance manual	on board ship
	General arrangement	on board ship
	Docking plan	on board ship
Medium	Calculation of hull girder section modulus	on board ship
	Dangerous area plan	on board ship
	Coating technical file	on board ship
	Structural details of hatch covers, doors and other closings integral with the shell and bulkheads	on board ship
	Intellectual property provisions	on board ship
	Summary, location and Access procedure for part of SCF Information on shore	on board ship
	Inspection schedule for ship structures	on board ship
	Copies of certificates of forgings and castings welded into the hull	on board ship
	Tank testing plan including details of the test requirements	on board ship
	Non destructive testing plan	on board ship
	Areas prone to yielding and/or buckling	on board ship
	Areas prone to fatigue	on board ship
	Areas prone to excessive corrosion	on board ship
	Detail of bottom plug	on board ship
	Details for in-water survey	on board ship
	Means of access to other structure-integrated deep tanks and large void spaces	on board ship
	Ship structure access manual	on board ship
	SCF-specific (1) to (15)	on board ship

Requirements of SCF Archive Center

- IP Level of SCF Information (3/3)



Table 2: Standard IP Levels and Storage Locations (continued)

IP level	Document name used in Industry Standards	Storage location
Medium	Midship section	on board ship
	Main O.T. and W.T. transverse bulkheads	on board ship
	Construction profiles/plans	on board ship
	Shell expansions	on board ship
	Forward and aft sections in cargo tank (or hold) region	on board ship
	Engine-room construction	on board ship
	Forward construction	on board ship
	Stern construction	on board ship
	Rudder and rudder stock	on board ship
	Stern frame	on board ship
	Structural details	on board ship
	Equivalent to Lines plan	on board ship
High	Strength calculation	on shore archive
	Fatigue life calculation	on shore archive
	Yard plans	on shore archive
	Lines plan	on shore archive

Documents

Access

Use

Low	Used in day to day ship operation	Simple	Frequent
Medium	Not required on a daily basis	Moderate	Moderate
High	Sensitive, infrequently used	Complex	Seldom

1) Background:

- Protection of design know-how and IP for Korean shipbuilder
- In the 73rd technology committee meeting('13.11.29) in KOSHIPA, Korean Shipbuilders **agreed the development/operation of SCF Archive Center by KR**

2) Target:

- BC and OT of more than 150m built in Korean Shipyards
- CSR-H Ships built in abroad yards of Korean shipbuilder
(under consideration in KOSHIPA SCF TFT)

Estimation of Archive Capacity (1/3)

- ✓ Target ship for estimation (KR class ships, Scan file of approval drawing (PDF))
 - Oil Tanker: VLCC
 - Bulk Carrier: 180K Bulk carrier

No	Document type	VLCC		180k Bulk carrier	
		Size & Page	Size in digital document [MB]	Size & Page	Size in digital document [MB]
1	Key plans and Construction	A0 - A4 (1 - 87)	149.1	A0 - A4 (1 - 141)	258.6
2	Calculation documents, Manual	A3 - A4 (1 - 1500)	785.5	A3 - A4 (1 - 500)	249.7 (750)*
3	SCF-specific	A3 - A4	30.0	A3 - A4	30.0
Total			964.6		538.3 (1038.3)

→ Maximum 1 Gbyte for a ship

* Applying CSR-H

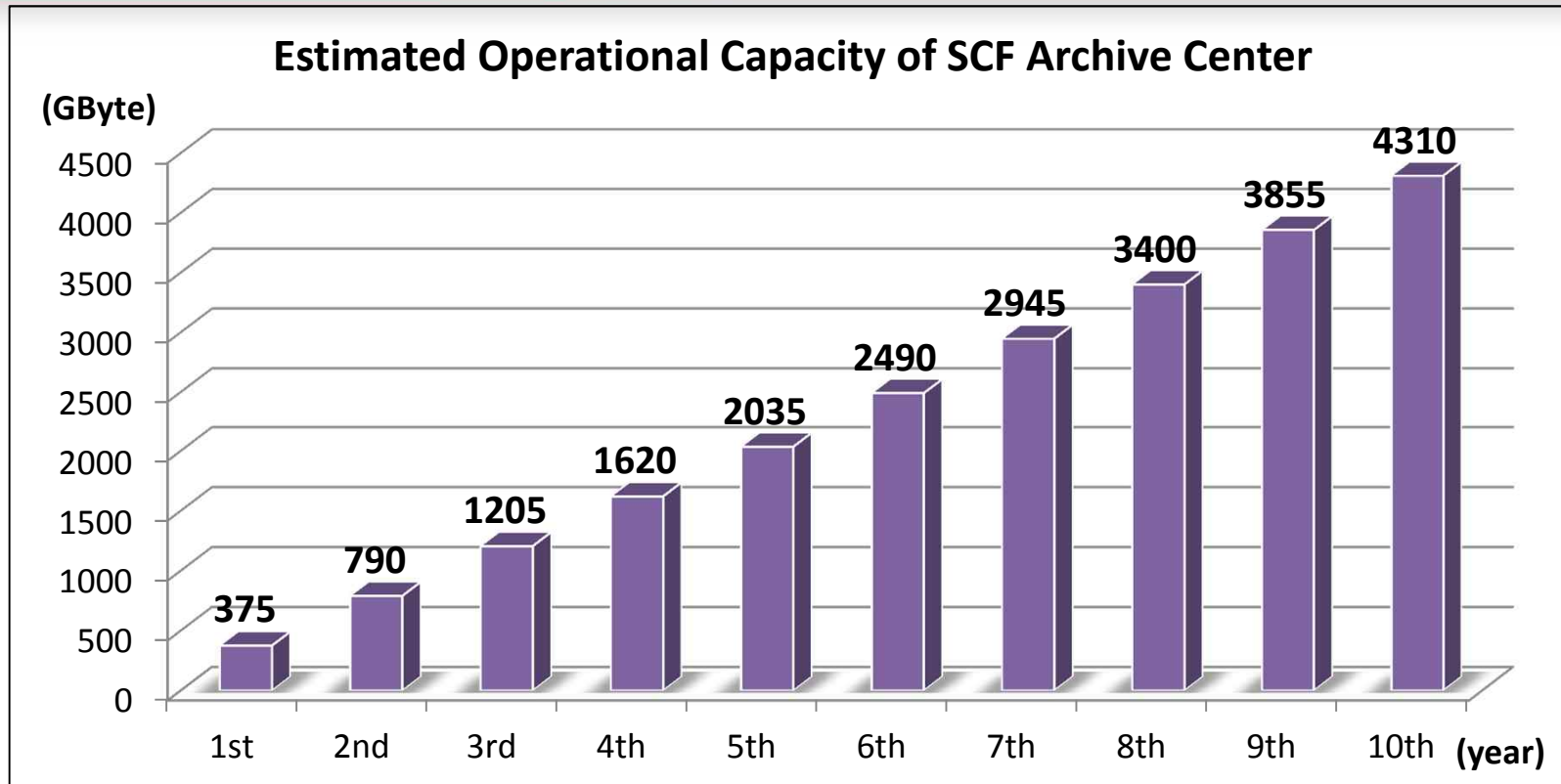
Estimation of Archive Capacity (2/3)



- ✓ SCF operational condition – Backup (Applying public cloud backup service)
- ✓ Since newly built, documents update for repair/conversion (25% per a ship's archive capacity)
- ✓ Archiving vessels per year: 200 vessels (Considering number of average new built ship in last 2 years of BC 197 vessels, OT 106 vessels, plus margin)
- ✓ Safety margin for overall process: 50%

Archive Center Capacity (/w resize)	
Required Capacity per a Ship (GB): 1.0GB x 1.5(safety factor) x 1.25(Changing)	1.875
New Built Ships per Year (BC & OT): 200 vessels	200.0
Total Annual Archive Capacity (GB)	375

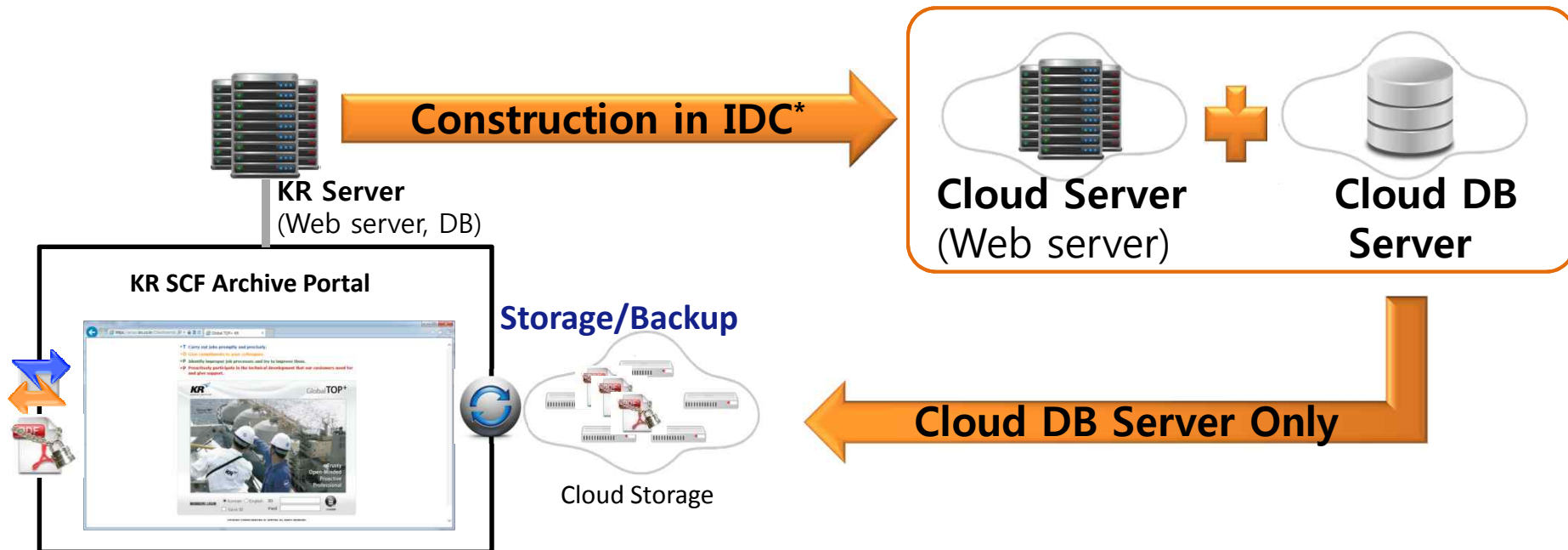
Estimation of Archive Capacity (3/3)



- ✓ Increasing 375 GB/year based on archiving 200 vessels per year (1.875 GB/ship)
- ✓ Increase of 40 GB per year is expected for repair/conversion from 2nd year
- ✓ Additional 40 GB/year is considered for repair/conversion from 5th year
- ✓ When consider ship' life, it'll converge to **10TB~12TB in 20~25th year**

Cloud-based Server

Functional Separation



* Internet Data Center

- ✓ **Time/cost Saving:** security, backup, redundancy, maintenance, acquisition and installation of S/W(OS, DB), adoption of specialized IDC service
- ✓ **Long-term operability:** saving initial setup cost for physical server which considered additional operation margin, IDC service which guarantees quick and flexible changes in system configuration/spec.

Cloud-based SCF Archive Center

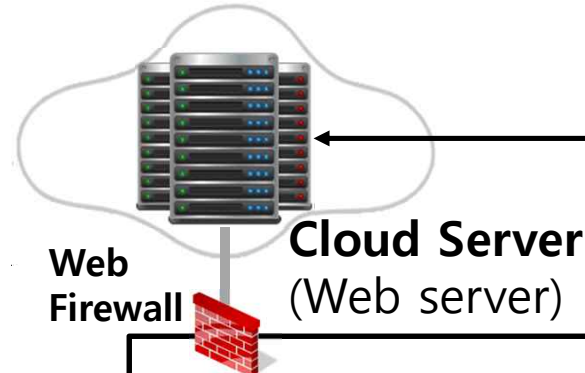
IP*-Holder



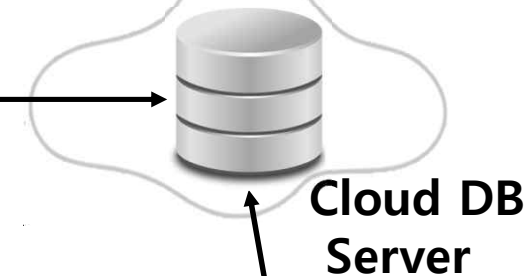
* intellectual property

** backup from cloud service

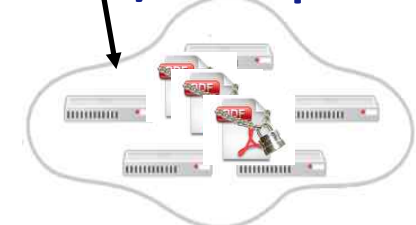
Web-Service



User Info, IP-Level, SCF Location DB



SCF – Storage /Backup**



Cloud Storage

Upload/
View/
Print

Conversion

KR SCF Archive Portal



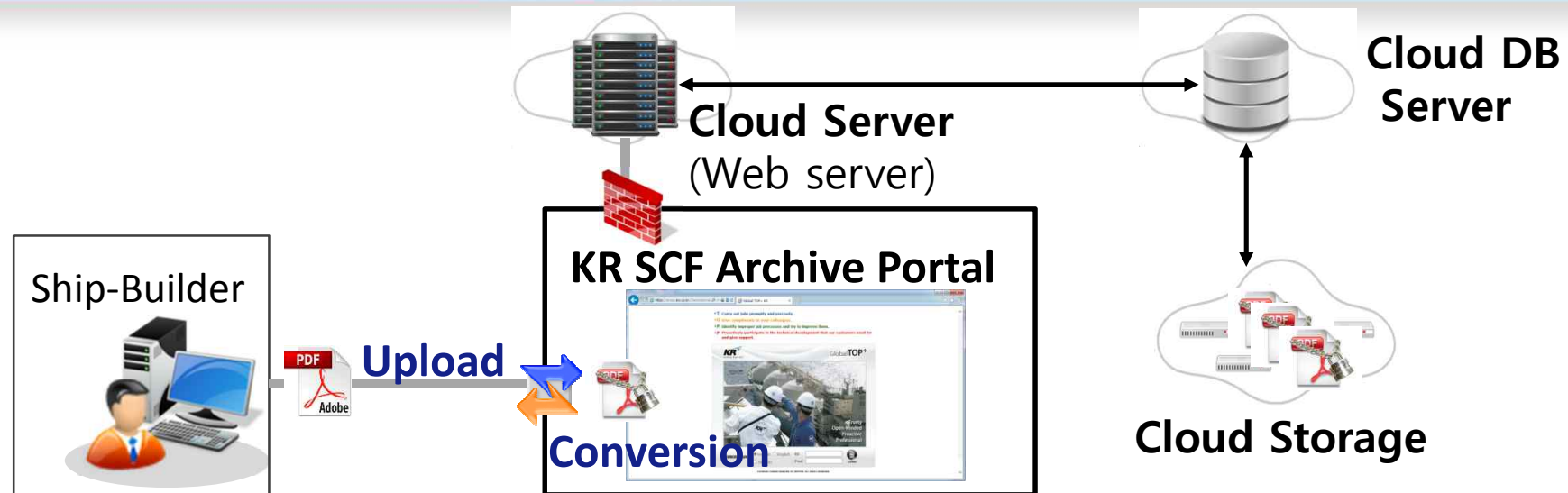
✓ Three independent cloud system

- Cloud server: web portal service, web firewall (security), PDF conversion, logging
- Cloud DB server: user authorization, SCF IP-level, SCF Storage link (address)
- Cloud storage: actual SCF file storage (user access restriction; DB link/ authorization key required)

Web Portal of KR-SCF Archive Center (1/4)

- ✓ Overview: Web portal for upload, search, view of SCF information
- ✓ Key feature:
 - **English, high-security web, around 10 user connections**
 - **Distributed:** Cloud web server, Cloud DB server, Cloud storage(file archive)
 - Cloud web server: 4vCore 8GB RAM, 100GB Disk, MS Windows Server 2012 Standard (64 bit)
 - Cloud DB Server: 4vCore 4GB RAM, 100GB Disk, Windows Server 2012 Standard (64 bit), SQL Server Standard (2012 or 2008R2)
 - Cloud Storage: KT ucloud NAS
 - Security: DDOS, IPS, F/W(VR) provided by CDC
 - Operation: access of DB, NAS limited to **internal network of CDC(CIP) only**
- ✓ Key function:
 - **(Upload)** IP-Holder(Shipbuilder), **(Search, View)** Shipowner and many others, **(Manage and Admin)** SCF Archive Center Operator

SCF Upload Process



1. Shipbuilder (SCF preparation) →

2. Portal Connect/Login

***Web Server:** Web portal UI for shipbuilder
Connection info logging

→ 3. Register Ship Information →

***Web Server:** Input ship info using FormView

***DB:** New DB for SCF with respect to input

4. Upload

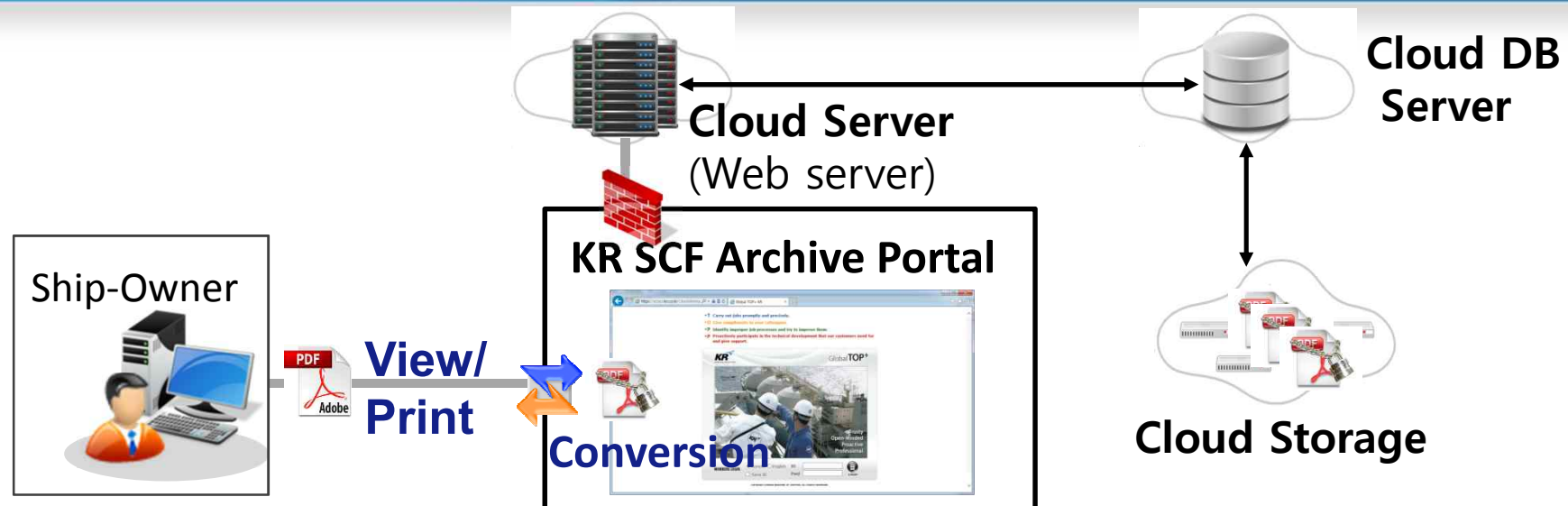
***Web Server:** SCF converting/encrypting, IP-Level

***Operator:** Check conversion and IP-Level of SCF

***Storage:** Store SCF, generate link and auth. key

***DB:** SCF filename, IP-Level, storage link and
auth. Key into DB

SCF Search/View Process



1. Shipowner (Identifying SCF)



2. Portal Connect/Login

- ***Web Server:** Web UI for shipowner, logging
- ***Operator:** set corresponding ship, authorizing
- ***DB:** user info., ship info, authorization into DB

→ 3. Search Ship or SCF name

- ***Web Server:** Search UI for ship, shipbuilder, and shipowner
- ***DB:** List of SCF according to query



4. View

- ***Web Server:** Authorization check, license check, viewer, printing, logging
- ***DB:** IP-Level of requested SCF, user authorization, link and auth. key of storage
- ***Storage:** SCF according to link and auth. key
- ***Operator:** Procedure for High IP-Level SCF

Web Portal of KR-SCF Archive Center (2/4)

- **(Upload) UI for SCF Ship Info Input:**
 - Ship type, ship name, shipowner, class, flag, IMO no., shipbuilder, man-in-charge of SCF in shipbuilder, whether if new or update
 - Temporary save, Request to archive, Approval (by SCF Operator)
- **(Upload) UI for PDF File Handling:**
 - Drag&Drop SCF for each ship (dozens of PDF; unit of MB (max 1GB))
 - Interface with KR PDF Encrypting S/W
 - Making DB for a ship, uploading each SCF at Cloud Storage and getting REST key (link; address) and authorization key to set them in DB
 - Itemizing each SCF according to classification of SCF [\[Ref Table. 2\]](#) →
manual(shipbuilder, SCF Archive Center operator)/
automatic(SCF classification file; prepared by shipbuilder)

Web Portal of KR-SCF Archive Center (3/4)

- **(Search, View)** Search by ship type, ship name, shipbuilder, shipowner, class, flag, IMO no., SCF filename, SCF item, and SCF Archive Center register date
 - General Search; Return value[ship name]: ship type, ship name, shipbuilder, shipowner, class, flag, IMO no., SCF Archive Center register date → List of corresponding ships → On click at the name of each ship, List of SCF itemized by SCF classification (under condition of user's authorization for the ship)
 - Detailed Search; Return value[SCF name]: file name, SCF item → List of SCF which meets user's authorization of IP-Level → On click at the name of each file, retrieving file to connect the specified browser(KR)
 - Low, Mid-IP View: Specified browser(KR) only → On viewing, logging for SCF file info, user info, access date and time (Keep more than 10 years)
 - High-IP View: Request reason, shipping address → SCF Operator check → Permission request to the shipbuilder → SCF Operator printing/shipping → Set period for viewing, notice (viewer, SCF operator; mail, portal)

Example of Upload

UI for IP-Holder 대우조선 Logout

SCF Archive

SEARCH

UPLOAD

Upload

Ship builder	<input type="text"/>	Hull No.	<input type="text"/>	검색
Class No.	<input type="text"/>	IMO No.	<input type="text"/>	
Ship Name	<input type="text"/>	Ship Type	All <input type="text"/>	

New

신규

		IMO No.	Ship Name
1		911011552	구리호
2		911011549	대양호

Edit Ship Info.

On click: upload file

SCF Archive

SEARCH

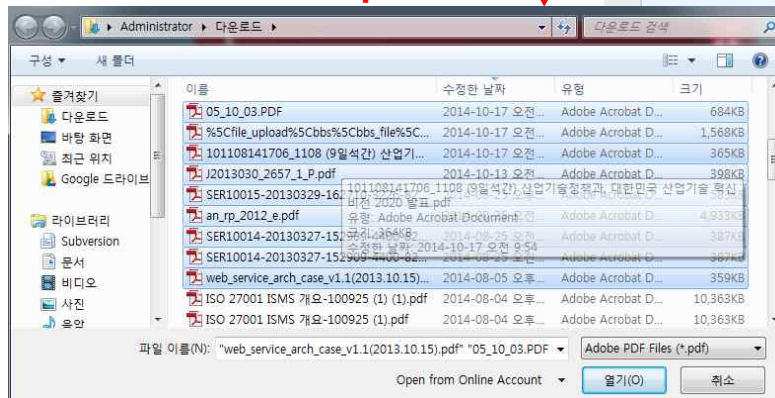
UPLOAD

Ship Registration

기본 정보

* IMO No.	<input type="text"/>
* Class No.	<input type="text"/>
Flag	<input type="text"/>
Ship Name	<input type="text"/>
Hull No.	<input type="text"/>
선종	Oil Tanker(OT) <input type="text"/>
제조일	<input type="text"/>
* 선사	군산여업 <input type="text"/>
선주	<input type="text"/>
* 조선소	대우조선 <input type="text"/>

Input Ship Information




등록

리스트

Automatic Upload

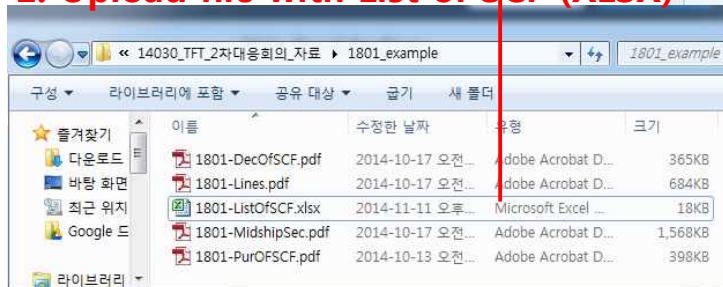
List of SCF Information



Ship Name	MS OFFICE		
Ship Type	Bulk Carrier		
Shipowner	INTERGOOGAL		
Class	KR		
Flag	PANAMA		
Remarks	New		
IMO no.	91101152		
Hull no.	1801		
Delivery Date	2018.11.27		
No.	SCF Item		SCF na
0-1	Purpose of SCF		1801-Pu
0-2	List of SCF Information		1801-Lis
0-3	Descriptions of SCF-Specific		1801-De
0-4	Table showing the strage location, IP Level, IP Class and IP Holder name for each of the documents containing SCF		-
0-5	Table Showing the linkage between each of the documents containing SCF Information and the GBS Tier 2 functional		-

2. Automatic Itemized

1. Upload file with List of SCF (XLSX)



SCF Archive

SEARCH

UPLOAD

대우조선

Logout

Ship Registration

호선 정보

IMO No.	911011552	Class	DNV	Flag	US
Ship Name	구리호	Hull No	992		
선종	Oil Tanker(OT)	제조일	2000.01.02		

Low 수준 파일 정보

Capacity plan	uploadFileName.pdf (Capacity plan)
Loading manual	manual.pdf (Loading manual)
Trim & stability booklet	booklet.pdf (Trim & stability booklet)
Loading instrument instruction manual	instruction 1.pdf (Loading instrument instruction manual) instruction 2.pdf (Loading instrument instruction manual)
Operation and maintenance manual	maintenance1.pdf (Operation and maintenance manual) maintenance2.pdf (Operation and maintenance manual) maintenance3.pdf (Operation and maintenance manual)
General arrangement	arrangement.pdf (General arrangement)
Docking plan	Docking.pdf (Docking plan)

Medium 수준 파일 정보

Calculation of hull girder section modulus	uploadFileName.pdf
Dangerous area plan	uploadFileName.pdf
Coation technical file	uploadFileName.pdf
Structural details of hatch covers, doors and other closings inte gral with the shel and bulkheads	uploadFileName.pdf
intellectual property provisions	uploadFileName.pdf
Summary, location and Access procedure for part of SCF Infor mation on shore	uploadFileName.pdf
Inspection schedule for ship structures	uploadFileName.pdf
Copies of certificates of forgings and castings welded into the hu	uploadFileName.pdf

5. Checked by SCF operator
(File status, Itemized status)
→ 6. Done

3. Checked by shipbuilder (user)
→ 4. Request for new registration

Example of Search/View

UI for Shipowner 나대표 Logout

SCF Archive



SEARCH

Ship Search List

Ship builder	<input type="text"/>	Hull No.	<input type="text"/>	검색
Class No.	<input type="text"/>	IMO No.	<input type="text"/>	
Ship Name	<input type="text"/>	Ship Type	All <input type="text"/>	

		IMO No.	Ship Name	Class	Flag	Hull No.	Ship Type	제조일
1		911011547	바다호	KR	KR	992	Bulk Carrier(BC)	2000.01.02
2		911011553	사계호	ABS	KR	992	Oil Tanker(OT)	2000.01.02
3		941011545	대한호					
4		941011545	대한호					
5								
6								
7								
8								
9								
10								

On Click: List of SCF information

Default:
List of own ship

List-up by IP-Levels
(check user's auth.)

Ship Registration

호선 정보

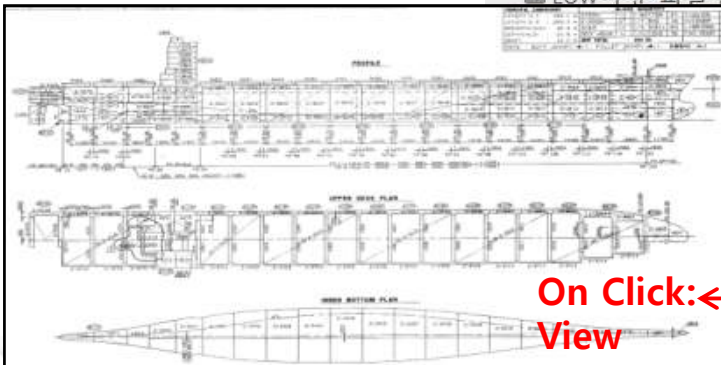
IMO No.	911011547	Class	KR	Flag	KR
Ship Name	바다호	Hull No	992		
선종	Bulk Carrier(BC)	제조일	2000.01.02		

Low 수준 파일 정보

Capacity plan	uploadFileName.pdf (Capacity plan)
Loading manual	manual.pdf (Loading manual)
Trim & stability booklet	booklet.pdf (Trim & stability booklet)
Loading instrument instruction manual	instruction 1.pdf (Loading instrument instruction manual) instruction 2.pdf (Loading instrument instruction manual)
Operation and maintenance manual	maintenance1.pdf (Operation and maintenance manual) maintenance2.pdf (Operation and maintenance manual) maintenance3.pdf (Operation and maintenance manual)
General arrangement	arrangement.pdf (General arrangement)
Docking plan	Docking.pdf (Docking plan)

23/30

On Click: View



Authorization of User



- **Shipowner User Master:** List of own ships, View all SCF
- **Shipowner User A:** List of the predefined ship among own ships, View all SCF
- **Shipowner User B:** List of the predefined ship among own ships, View predefined IP-Level of SCF
- **Shipbuilder User:** List of ship built in that yard, View all SCF, ship's information
- **3rd Party User** (Coast Guard, Class, etc.) : List of ship filtered by specific keyword such as flag or class or ship type in cooperation of SCF Archive Center Operator, View predefined IP-Level of SCF
- **SCF Archive Center Operator:** List all ship in archive center, View all SCF, ship's information

Web Portal of KR-SCF Archive Center (4/4)



- **(Management and Admin) SCF Archive Management and Portal Admin**
 - User Management: User type (Permission), User authorization, User registration
 - Uploaded SCF Check: SCF file status check, SCF itemize status check, coordinate, approve
 - SCF IP-Level Modification: notice, check, approve for IP-Level downgrade of Mid-Level SCF after 10 year since archiving date to Low-Level
 - View, Search, Print of Logging (MS-EXCEL)
 - Portal Admin
- **(Web Security/Management) ISMS Certification**
 - ISMS(Information Security Management Systems):
Web portal/admin appropriate enough to acquire ISO/IEC 27001/27002 certification

Example of Admin (1/2)

UI for SCF Operator Administrator Logout

SCF Archive

SEARCH

UPLOAD

MEMBER MGT.

APPROVED

READ REQUEST

ACCESS LOG

Register/Manage User

Company List

회사명 검색

담당자 성명

		구분	회사명	담당자 성명
1		선사	군산머업	이사인
2		조선소	당진조선	김삿갓
3		조선소	대우조선	길동무
4		선사	로디우스	이상해
5		선사	삼성전자	홍민호
6		선사	아이피엠	나폴폴
7		선사	제주해상	김갑부
8		선사	태안시청	나달당
9		조선소	현대조선	최창호
10				

Page 1 of 1 Records per page: 20 Displaying 1 to 9 of 9 items.

Default: List of all ship

Member List

회원 ID 검색

회원 성명

신규 전사관리

BTN	user Type	userid	user name	phone	E-Mail	dates
1	제3자	other	1111			2014-11-08 23:53:00
2	운영요원	admin1	Administrator	010-1234-1234	mail@mail.com	2014-11-03 20:23:06
3	선사	holder2	나사철	010-1234-1234	mail@mail.com	2014-11-03 20:23:06
4	선사	holder1	나대표	010-1234-1234	mail@mail.com	2014-11-03 20:23:06
5	조선소	builder2	현대조선	010-1234-1234	mail@mail.com	2014-11-03 20:23:06
6	조선소	builder1	대우조선	010-1234-1234	mail@mail.com	2014-11-03 20:23:06
7	운영요원	scf	Administrator	010-1234-1234	mail@mail.com	2014-11-03 20:23:06
8						
9						
10						

Page 1 of 1 Records per page: 20 Displaying 1 to 7 of 7 items.

042-000-0001 email@ema

Member Right

회원 정보

user ID	other	tel	111	E-Mail	
name	1111	phone		user type	제3자

소속 정보

회사명	전화	사업자등록번호
담당자 성명	담당자 전화	담당자 메일

권한 정보

Rights destination	Ship Name	Right	IP Level	
1 Selection	대환호	WRITE	High	삭제
2 Selection	신선호	WRITE	High	삭제
3 Selection	구리호	WRITE	High	삭제
4 Selection	바다호	READ and WRITE	Medium	삭제
5				

User Authorization Management

Permitted ship Permitted IP-Level

Example of Admin (2/2)

UI for SCF Operator Administrator Logout

SCF Archive



SEARCH



UPLOAD



MEMBER MGT.



APPROVED



READ REQUEST



ACCESS LOG

Archive Request List

Company List

회사명 검색

담당자 성명

	구분	회사명	담당자 성명	담당자 전화
1	선사	군산머업	이사:	
2	조선소	당진조선	김상:	
3	조선소	대우조선	김동:	
4	선사	로디우스	이상:	
5	선사	삼성전자	홍민:	
6	선사	아이피엠	나을:	
7	선사	제주해상	김갑:	
8	선사	태안시청	나담:	
9	조선소	현대조선	최창:	
10				

Page 1 of 1 Records per page: 20 Displaying 1 t

Default: List of all ship

Read Request

기간 2014.11.11 ~ 2014.11.11 검색

상태 승인요청
승인대기
처리중
전송완료

menu name	file name	url
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Access Log

user ID ship name 검색

file name 기간 2014.11.11 ~ 2014.11.11

Logging

Excel Print()

	user ID	menu name	ship name	file name	url	dates
1	scf	Access Log > List			http://pagei.iptime.org:4588/scf/etcs/accessLog.do	2014-11-11 18:01:32
2	scf	Read Request > List			http://pagei.iptime.org:4588/scf/etcs/requestList.do	2014-11-11 18:00:14
3	scf	Member Mgt > Member List			http://pagei.iptime.org:4588/scf/user/memberList.do	2014-11-11 18:00:13
4	scf	Upload > Upload List			http://pagei.iptime.org:4588/scf/ship/uploadList.do	2014-11-11 18:00:12
5	scf	Upload > Upload List			http://pagei.iptime.org:4588/scf/ship/uploadList.do	2014-11-11 18:00:09
6	scf	Member Mgt > Member List			http://pagei.iptime.org:4588/scf/user/memberList.do	2014-11-11 18:00:08
7	scf	Member Mgt > Member Right			http://pagei.iptime.org:4588/scf/user/memberRight.d	2014-11-11 17:57:55
8	scf	Member Mgt > Member Right			http://pagei.iptime.org:4588/scf/user/memberRight.d	2014-11-11 17:56:37
9	scf	Member Mgt > Member List			http://pagei.iptime.org:4588/scf/user/memberList.do	2014-11-11 17:56:33
10	scf	Member Mgt > Member Registration			http://pagei.iptime.org:4588/scf/user/memberWrite.d	2014-11-11 17:56:20
11	scf	Member Mgt > Member Right			http://pagei.iptime.org:4588/scf/user/memberRight.d	2014-11-11 17:56:15
12	scf	Member Mgt > Member Right			http://pagei.iptime.org:4588/scf/user/memberRight.d	2014-11-11 17:56:15
13	scf	Member Mgt > Member List			http://pagei.iptime.org:4588/scf/user/memberList.do	2014-11-11 17:56:09
14	scf	Upload > Ship Registrat ion			http://localhost:8080/scf/ship/uploadWrite.do	2014-11-11 17:52:14
15	scf	Upload > Upload List			http://localhost:8080/scf/ship/uploadList.do	2014-11-11 17:52:12
16	scf	Search > Ship Search Li st			http://localhost:8080/scf/ship/searchList.do	2014-11-11 17:52:10
17	scf	Member Mgt > Compan y List			http://pagei.iptime.org:4588/scf/user/companyList.do	2014-11-11 17:33:48
18	scf	Member Mgt > Member List			http://pagei.iptime.org:4588/scf/user/memberList.do	2014-11-11 17:33:29

Conclusion



- ✓ Provide services throughout ship's lifetime; Neutral; Service 24 hours/365 days
→ **Adoption of Cloud storage**
- ✓ International service → **English web portal on KT CDC (International access)**
- ✓ Strict in safekeeping
 - **Access to Cloud storage (NAS), DB Server is limited by internal network of KT CDC**
 - **Specified PDF browser (encrypting/viewing) by KR**
- ✓ Backup and restore → **Adoption Cloud storage backup service (physically different CDC in Korea)**
- ✓ Service in good quality, cost effective → **Adoption Cloud storage (capacity-rate/traffic-rate)**

Future works



- ✓ Beta Test of Web Portal on KT CDC by Feb 2015
- ✓ ISMS Certification Acquisition Suitability Check by June 2015
- ✓ Specified PDF Browser Development by June 2015
- ✓ Pilot Service of Sample Ships (OT/BC) with KOSHIPA, Shipyards in Korea, and Shipping Company in Korea by October 2015
- ✓ Recruit SCF Archive Center Operator and Acquire ISMS Certification by Mar 2016
- ✓ Official Service of KR-SCF Archive Center from July 2016

Thank you for your attention!