



Integrated Tower System



WAN Yuan
Nov. 2018



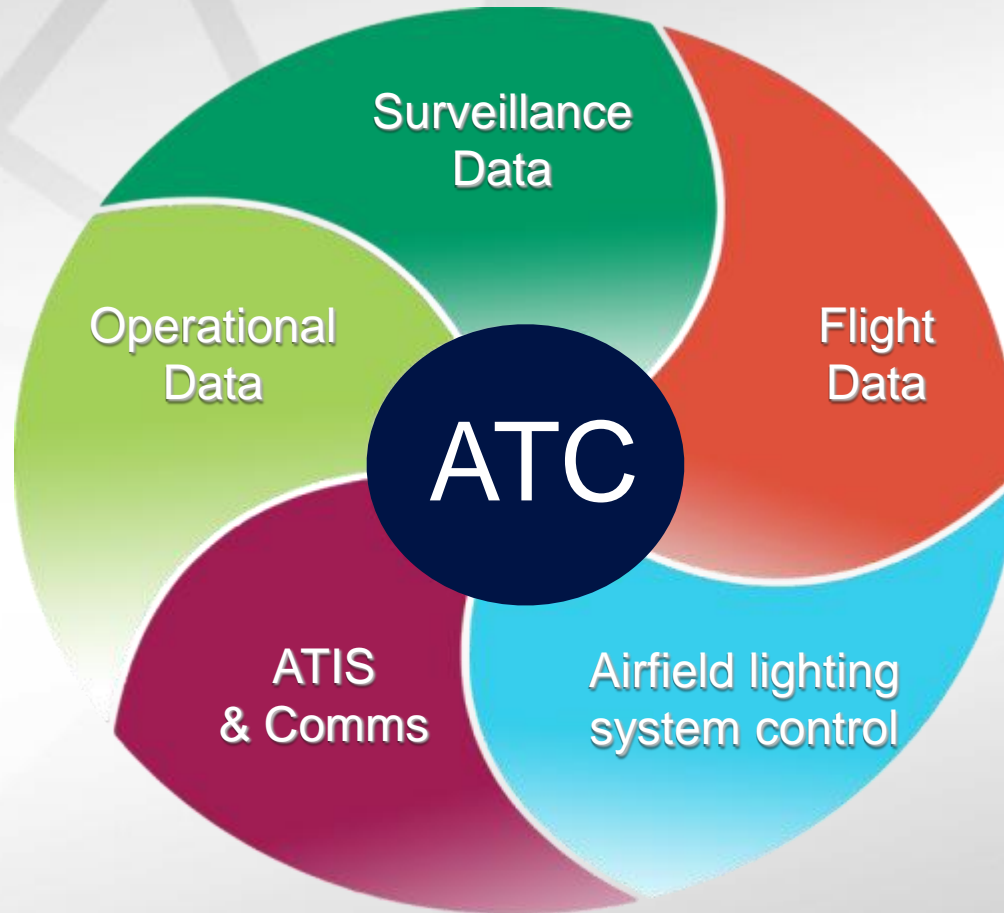
ATC towers are different, but all CWP's look the same: too many separated displays.



Less is more



Focus on Integration



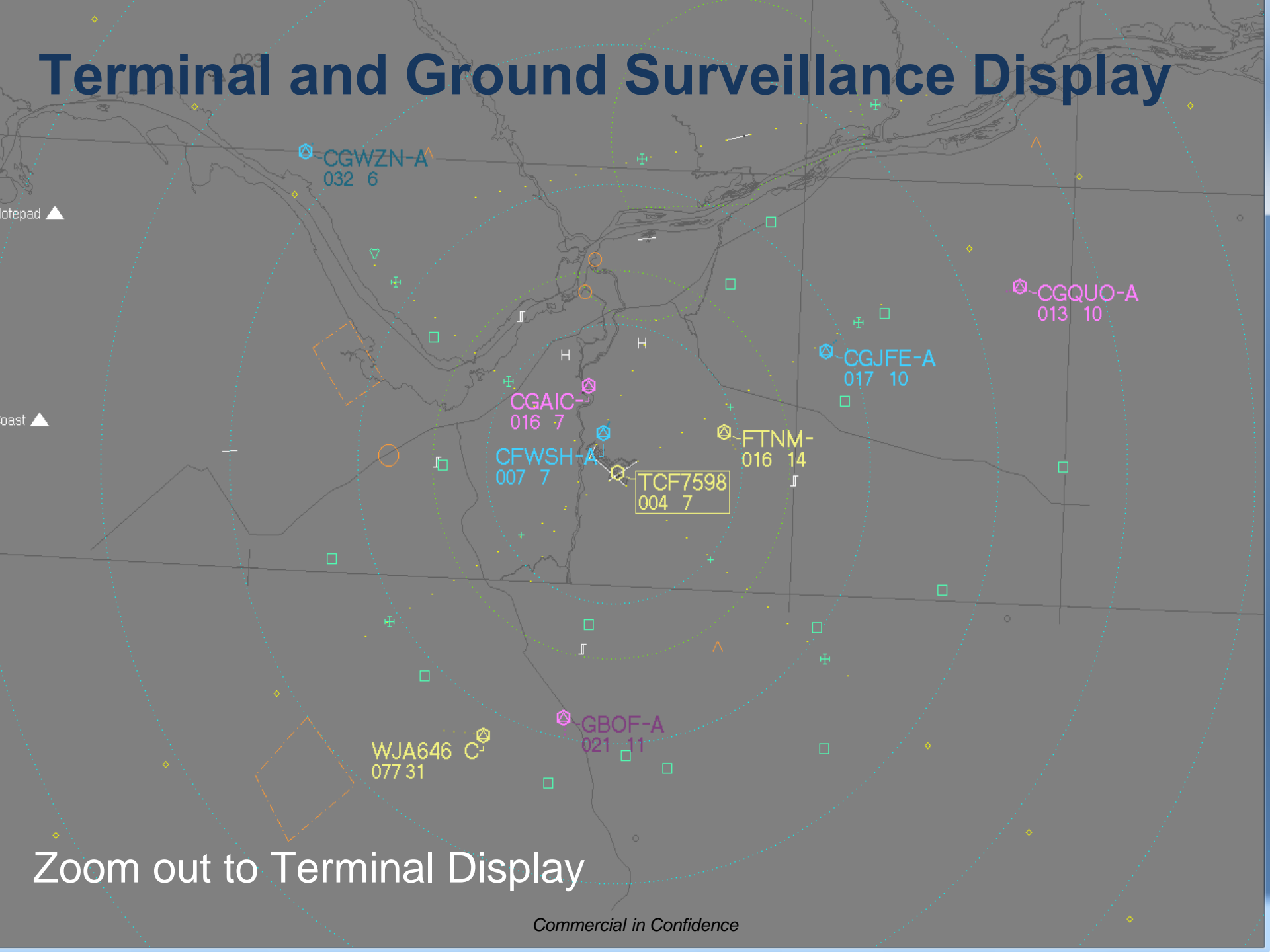


SURVEILLANCE DISPLAY FOR TERMINAL AND SURFACE



commercial in confidence

Terminal and Ground Surveillance Display



Zoom out to Terminal Display

EXCDS Workstation Version 6.0 (JF_SWEENEY_DEV5) (CYOW)

File View Edit Administration Tools Help

HOME | **CYOW** | **ONTARIO WEATHER** | **Extracted Reports**

DOCs | **ATIS** | **WEB** | **PIREP** | **AIRMET** | **SIGMET**

31-1-4

250 / 25

RWY	HEAD	CROSS
04	-22kts	-13kts
22	+22kts	+12kts
07	-25kts	+0kts
25	+25kts	+0kts
14	-9kts	+23kts
32	+9kts	-23kts

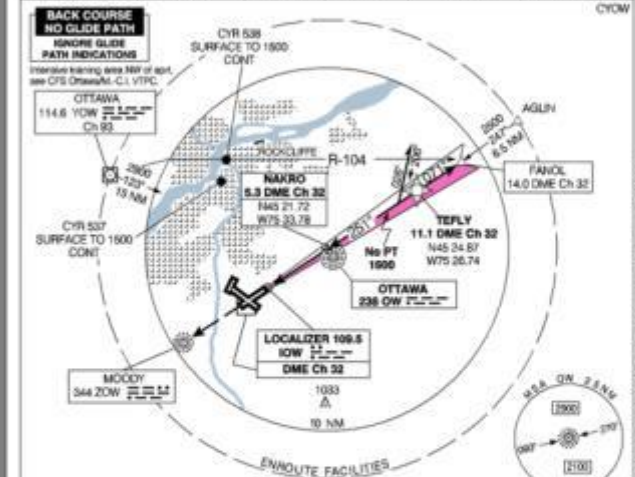
MESSAGE | INFO | PILOT | MISC | SEND TO

0753 | BRAKE | GOOD | 0737 | 25

LOC(B/C) RWY 25 | OTTAWAMACDONALD-CARTIER INTL OTTAWA ON

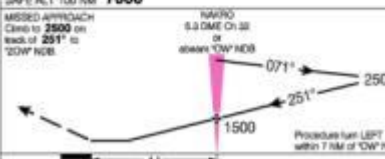
ATIS (Eng)	ARR OTTAWA ARR (Fr)	OTTAWA TWR	OTTAWA GND	DEP OTTAWA DEP	ELEV
121.15	136.15	118.8	121.9	128.175	374
					TDZE 25 373

BACK COURSE NO GLIDE PATH
IGNORE GLIDE PATH INDICATIONS
Intensive training area NW of airport, see CTS Drawing A-11 VTPC.



SAFE ALT 100 NM 7000

MISSED APPROACH
Climb to 2500 on track of 251° to 200° NDB



ENROUTE FACILITIES

Category	A	B	C	D
LOC(B/C)	660	(597)	1	
CIRCLING	880	(596) 1 1/2	880	1080 (506) 2 (706) 2 1/2

0737 25

TDM Display v0.2 09 168 / 22 34 039 / 8 QNH 1021 Temp 11.1 15:56:52

CLR/PUSH 2

YPAD	B744 H	DEP04	27		SMC
MNG ML CANTY STONE		NO-DME			2215
E2	B744 H	DEP06	27		SMC
MNG ML CANTY JAMOR		NO-DME			2225

TWY DEP 2

E1	B744 H	DEP07	27	S W K	CORRS6	050	SMC
MNG AUDRA		NO-DME			CORRS6		1545
YMML	B744 H	ARR20			015	015	ADC
JACKA ML		NO-DME					1543

RWY DEP 0

ACTIVE 14

TANTA RUMIE YPOK	NO-DME				
B744 W	ARR10	00			
YJER	1161				2246
YJER 3540514551E	NO-DME				
B744 W	ARR08	00			
YSCB	4010				2239
TANTA RUMIE YPOK	NO-DME				
B744 W	ARR09				ADC
YSCB	7206				2304
TANTA RUMIE YPOK	NO-DME				
B744 W	ARR11				
YSCB	7237				2238
CB17T CRG	NO-DME				
B744 W	ARR17				ADC
YLTV	0264				1537
LTV SEMAC	NO-DME				

RWY ARR 2

YSCB	B744 W	ARR14		RNP APP	ADC
TANTA RUMIE YPOK		NO-DME			1538
YLTV	B744 W	ARR16			ADC
LTV SEMAC		NO-DME			1544

TWY ARR 2

YSCB	B744 W	ARR15			ADC
TANTA RUMIE YPOK		NO-DME			1538
YMML	B744 W	ARR20	34		ADC
JACKA ML		NO-DME			1543

LOCALS 2

YSCB	YPPH	4053	DEP13				
CB17T CRG		NO-DME					
YSCB	YMML	3653	ARR07	00			
TANTA RUMIE YPOK		NO-DME					

Vehicles/Info 3 Info

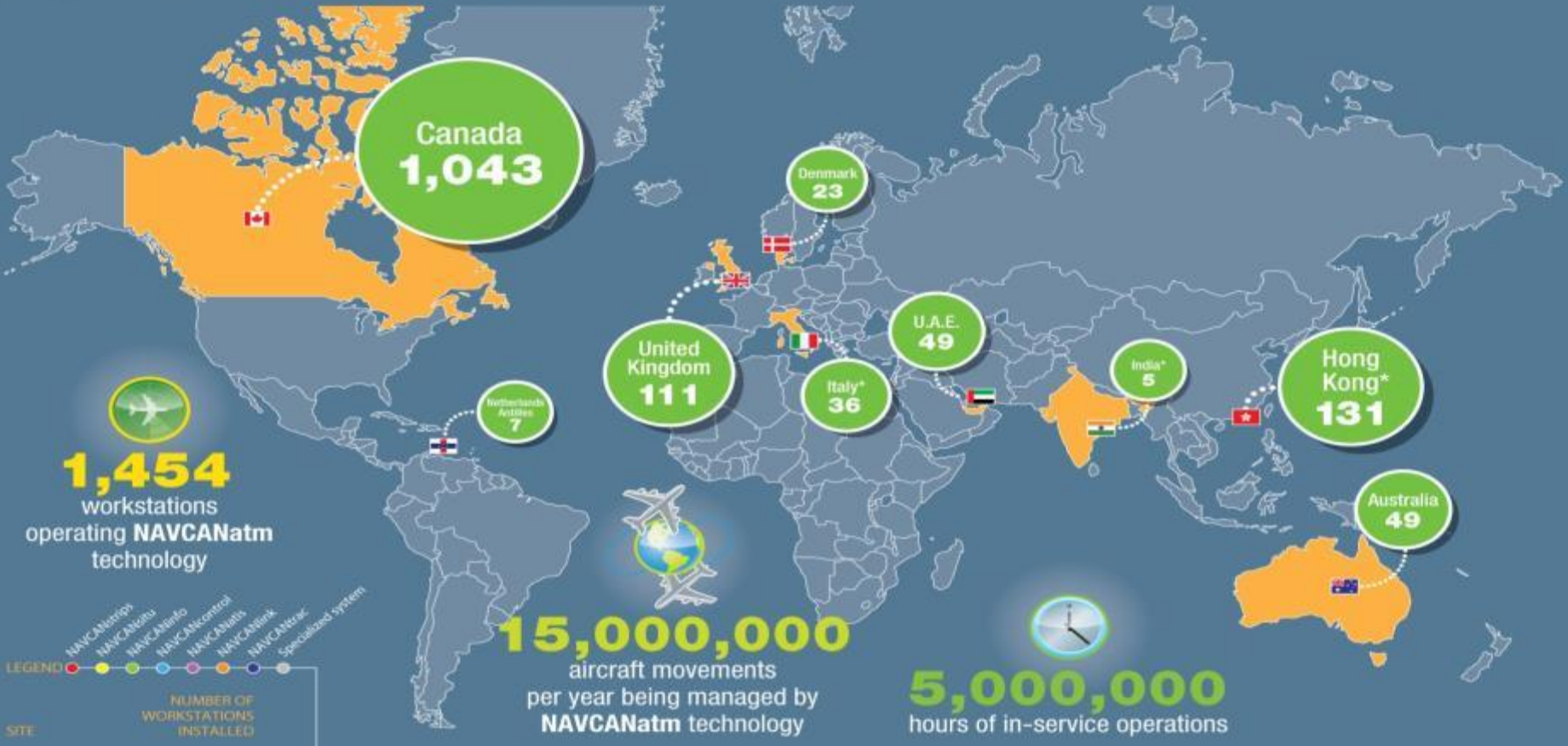
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	MOWER	09-27	NOW	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	CAR	09-27	NOW	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	CROSSING			<input type="checkbox"/>

Covid
DEP 09 AUTO OFF
ARR 09 FL 1836
P
LAHSO OFF
CAT I
CAT II
CAT III
09 - 27
16 - 34
16L - 34R
ADC
ADC
ADC
INIT

Over 1454 CWP's Served by Integrated Tower Tech.

NAVCANatm World-Wide | Number of NAVCANatm workstations

Around the globe, NAVCANatm technology is being used to manage some of the world's busiest airspace. On this map, we highlight the total number of workstations using NAVCANatm technology in countries across the globe.



Applications in Canada

- NAVCANstrips are used at more than 80 NAV CANADA sites for tower, terminal, airport and enroute coordination. This includes all 41 control towers across the country.
- NAVCANstrips have been adapted for a variety of airport and terminal environments, from large international airports to smaller facilities offering advisory services.
- These electronic strips are used by Greater Toronto Airport Authority Apron Management and De-icing Units.
- Other NAV CANADA sites with NAVCANsuite products include Area Control Centres, Flight Service Stations and Flight Information Centres.

Air Services Australia National Towers Program (NTP)

- NAVCANsuite-based tower solution
- Integration includes:
 - Harris Solacom voice switch
 - Surface Movement Guidance Control System
 - TDM
 - ODM
 - ESS
- Delivered & commissioned 4 tower solutions:
 - 2012 : Broome
 - 2012 : Rockhampton
 - 2013 : Adelaide
 - 2013: Melbourne
 - 2014: Gold Coast
 - 2015: Perth
 - 2015: Brisbane
- Options for 8 additional towers

NAVCANINFO APPLICATION IN HK

- Implementation of NAVCANinfo on over 150 workstations in two towers and the control centre at Hong Kong international airport.
- High performance multi-redundant network infrastructure.
- More than 20 external source data interfaces.
- Service to more than 100 web clients.



INTAS TRIAL SYSTEM IN HARBIN

- Roles of the tower in harbin:
Tower, Ground, Clearance,
Approach, Supervisor
- System working in Harbin:
VHF, strips(in paper and
electronics), ATIS, D-ATIS,
DCL, CDM, Automation(SDD
and FDD), AWOS, cloud map,
CCTV, AFTN, etc...

CWPs	Work mode
1	Approach +tower+gnd+clear
2	Approach+tower Gnd+clear
2	Tower Gnd+clear
3	Tower Gnd clear

INTAS TRIAL SYSTEM IN HARBIN

Information system working in Harbin		
System	Sub system/ function	manufacture
Automation	Automation (main/backup)	2 nd Institute CAAC
	AIMS	ADCC, China
	CDM	ADCC
	DCL	ADCC
ATIS	D-ATIS	ADCC
	ATIS	2 nd Institute CAAC
VCS	Main VCS	Schmid
	Backup VCS	Shenyang ATC Tech
Meteorology System	Meterology radar display	SunCreate
	Automation weather station	Vaisala
	Cloud map	/
AFTN	AFTN	TEDC, China

INTAS TRIAL SYSTEM IN HARBIN

- A typical position in Harbin (ground)



INTAS TRIAL SYSTEM IN HARBIN

- Integrated position in Harbin (display for surveillance, strips for controller, information)

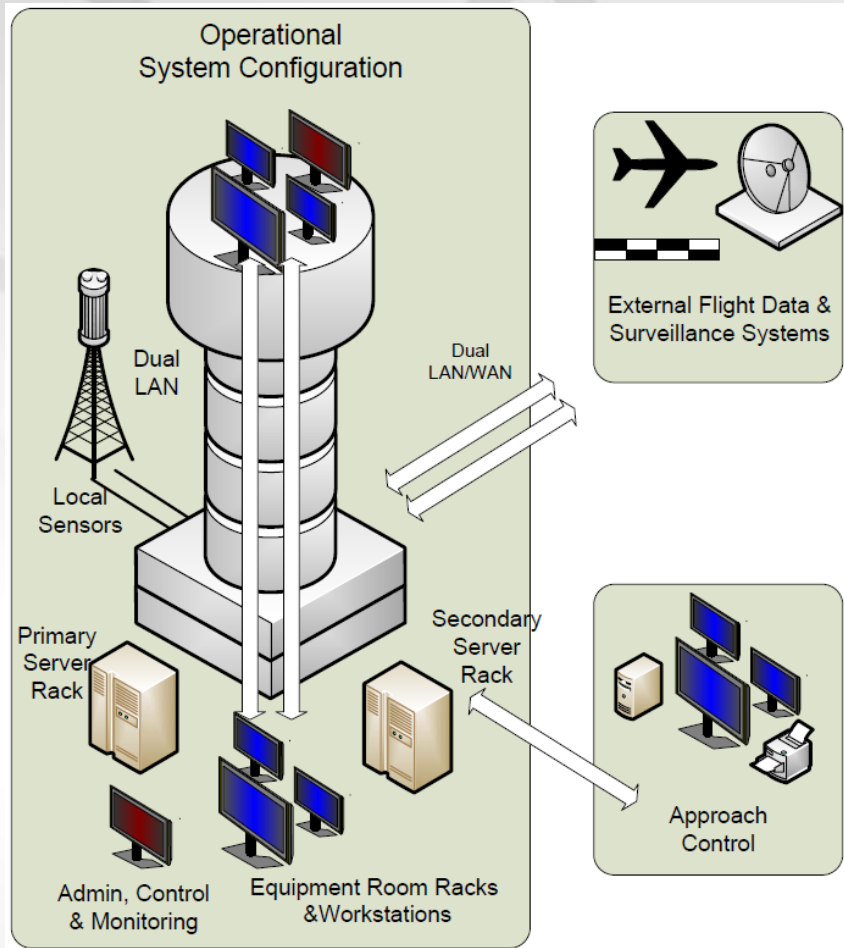


INTAS TRIAL SYSTEM IN HARBIN

- Key Point:
 - Interface: non-standard of standard
 - Rule: more strict than strict

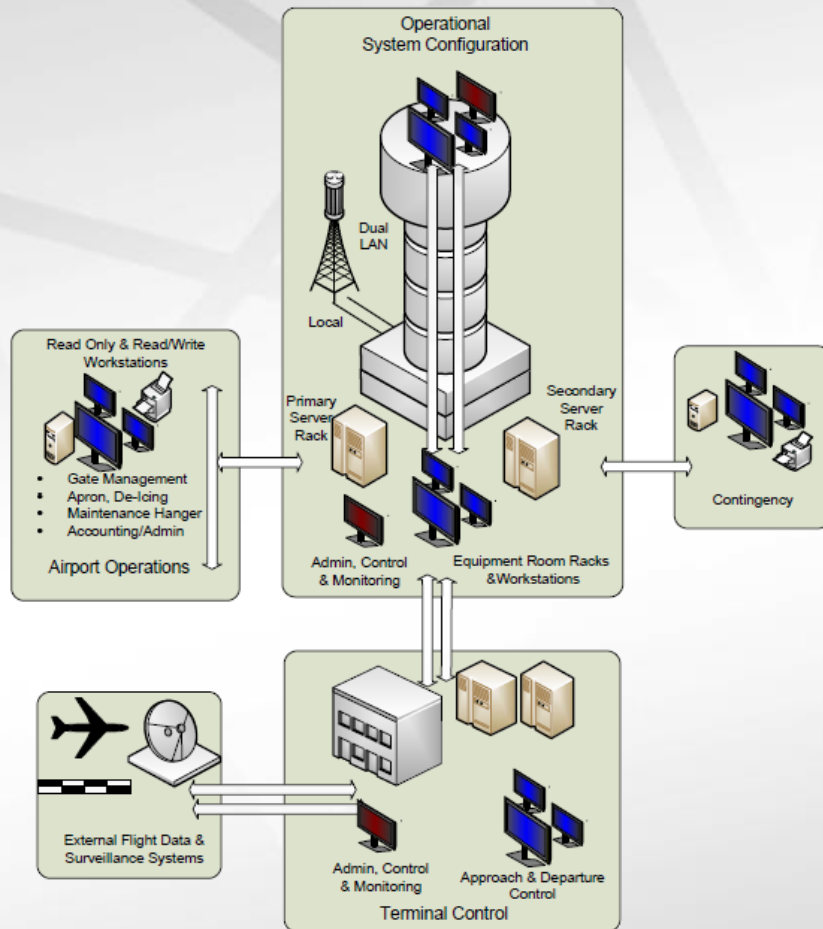
- Core Technology
 - Integration on the interface level
 - Combing on the operation flow

System Solution-1



- Solution for one tower:
 - main/backup server, redundant LAN/WAN, improved system reliability.
 - Online system for monitoring and configuration remotely
 - Support 3-20 CWP's for working.

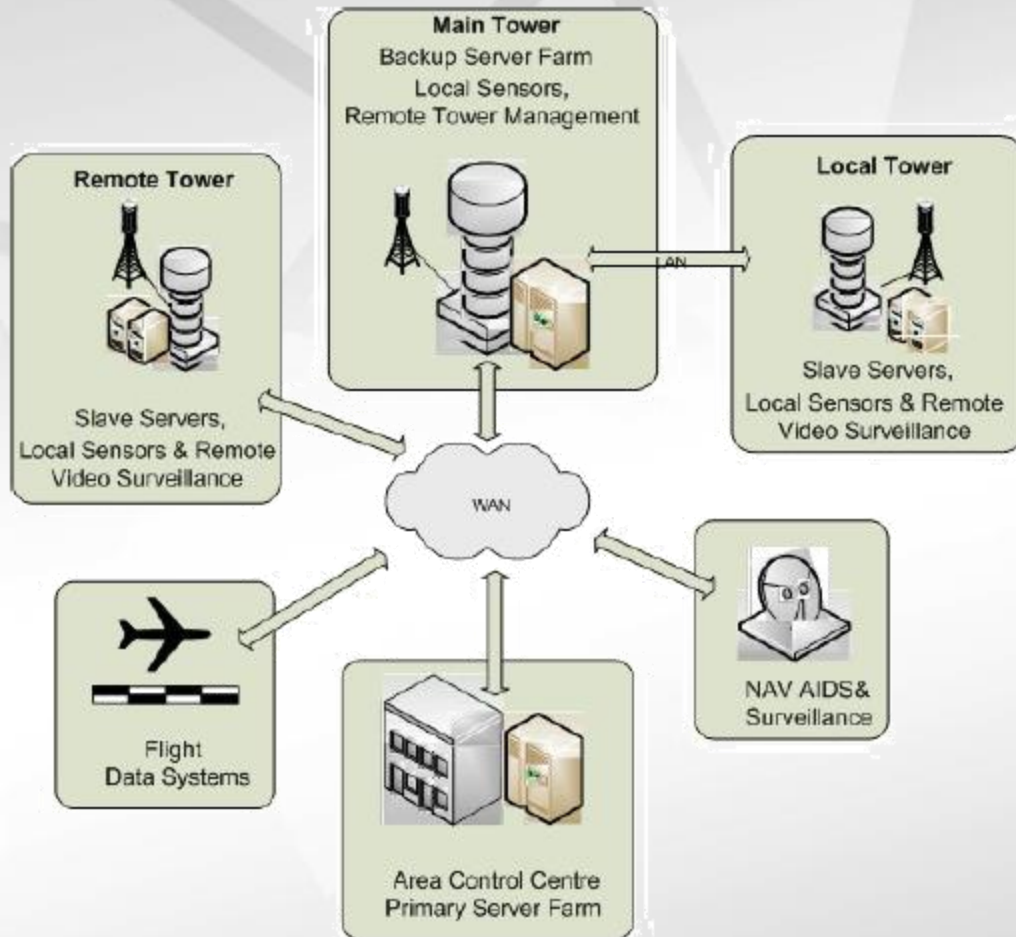
System Solution-2



- Solution for both tower and approach:
 - Data server could be shared or independent between tower and approach.
 - Information Data can be easily synchronized by network.

System Solution-3

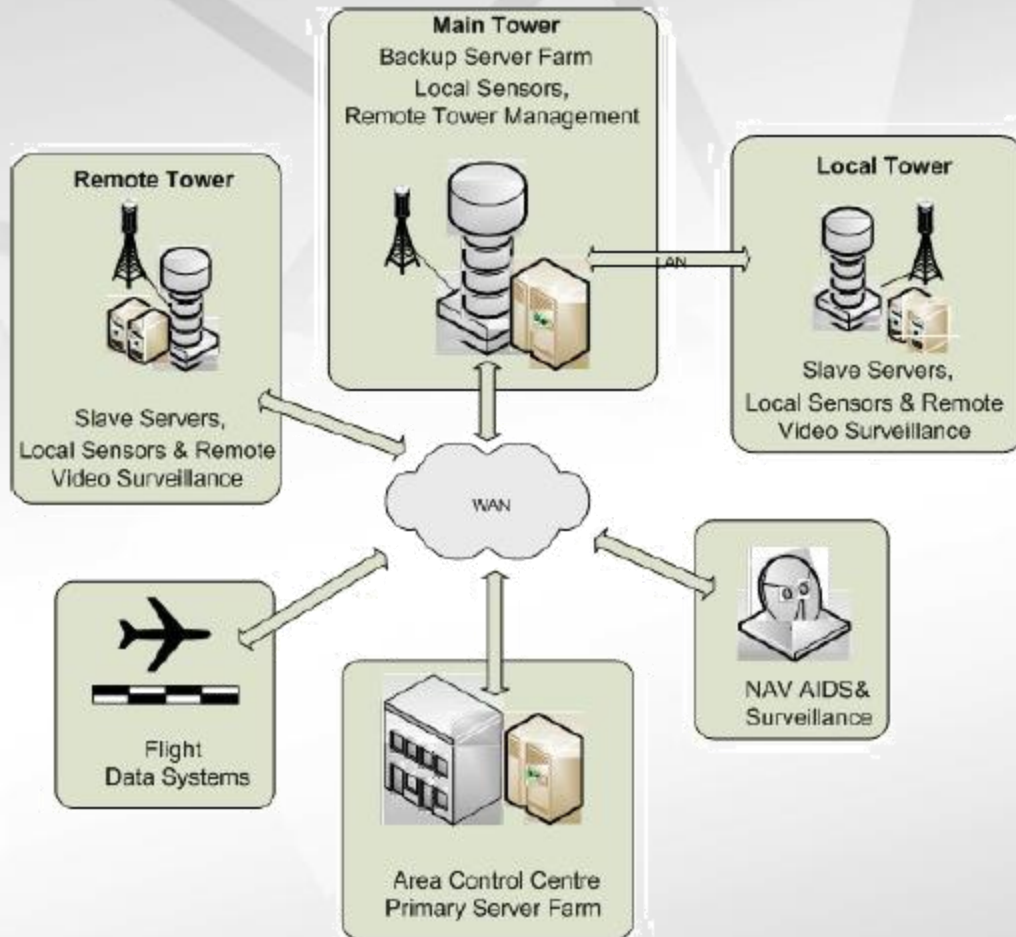
- Solution for ACC/multi tower system:



- Support up to 20 towers
500 CWP's
- Data can be synchronized and changed by optical fiber net work within Tower/Approach/ACC.
- Integrated with CCTV and cameras for more video information both or monitoring and controllers.
- Support remote ATC service for low-volume airport .

System Solution-3

- Solution for ACC/multi tower system:



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Remote Digital tower



Commercial in Confidence
commercial in confidence

Benefits of Integrated tower

- Improved safety
- Improved efficiency
- Reduced Cost



THANK YOU!



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