

Radio in the Cloud

A new dynamic in radio delivery

Scott Farr – RCS Canada

The **new normal** in broadcast
engineering



The new normal ...

Radio engineering and IT continue to move closer together

The new normal ...

Broadcast application and security management is becoming continually more complicated

The new normal ...

Application roll out, upgrades and training is complicated and difficult to manage

4W+H / (M/E)+(U/A)

The new normal ...

New operational threats including viruses and ransomware attacks

The new normal ...

Radio One (Feb 2019) ...it took some of the stations weeks to rebuild their file systems or even add new music to their playlists due to the damage the attack did to their computers. (Radioinsight.com)

Townsquare Media (April 2019) “Elsewhere in the building, {...} were able to continue an abbreviated show by hacking into their station's digital "emergency" control room. (710keel.com)

WMNF (July 2019) “Archived episodes of the station’s news and public affairs programming may be lost permanently.” (tampabay.com)

KQED (2017) “KQED was hobbled for months by an attack that forced one of the nation’s largest public media companies to shut down its entire computer network to prevent the ransomware from spreading.” (tampabay.com)

Max Media (July 2019) Market Manager Steve Falat told *The Southern* the radio group had received a message from an unknown party that stated, basically, "All of your files have been encrypted due to a security problem with your PC." (thesouthern.com)

The new normal ...


Increased traditional operating threats from weather and environmental changes

The new normal ...

**Continuing demand for increased
efficiency, simplified management,
and lower cost of operation**

The new normal ...

Tackling these **New Normal challenges
with traditional tools, applications
and platforms is becoming
increasingly more difficult**



Radio in the Cloud offers a **New** **Dynamic** in radio delivery for the **New** **Normal** challenges

*“The **new normal** is a time of substantial possibilities if you are willing to play by the new rules for the long term.”*

Roger McNamee

gSelector. Zetta. Aquira.



Cloud Radio offers a New Dynamic...

CLOUD BENEFIT

Improved Application Management

- Single application version deployment to one location ... the **Cloud**
- Simplifies the formula for training and implementation

from $4W+H / (M/E)+(U/A)$
to $2W / (U+T)/A$

Cloud Radio offers a New Dynamic...

CLOUD BENEFIT

Security Management

- **Single Sign-On Security (SSO)**
 - Reduced login support
 - Improved user experience
- **Universal Directory**
 - Manage users and groups with an application and feature matrix in one place
 - Automated application/feature provisioning

Improved Reliability and Availability

- **Availability**
 - Available Everywhere
 - How many 9's - Amazon SLA – 99.99%
- **Reliability**
 - Mean Time Between Failure is improved with Cloud Services as failure remediation is part of the system architecture.
 - Application re-provisioning to alternative availability zones

Cloud Radio offers a New Dynamic...

CLOUD BENEFIT

Radio in the Cloud benefit summary

- Improved Application Management and Deployment
- Advanced User Management and Security
- Enhanced Reliability/Fault Tolerance
- Risk Mitigation

A peek at tomorrow's **cloud radio** technology
with a **practical application for today!**



Today ...

- **FCC Main studio rule has been eliminated in the US**
- **Prompting US groups to look at redefining radio delivery in some markets**
- **Full featured cloud radio services now in development**
- **1st generation cloud radio services “Disaster Recovery” now available.**

Zetta Cloud - Disaster Recovery

- Stations are provisioned in the Zetta Cloud and run in parallel with physical Zetta stations
- Changes to schedules, audio and data are automatically replicated in real time to the Zetta Cloud
- When a site level disaster situation arises management can log into the Zetta Cloud from any device, anywhere and start the station payout.
- After a site level disaster is remediated Zetta Cloud will restore the station audio and data with any changes that may have occurred while operating in the Zetta Cloud.



User Interface

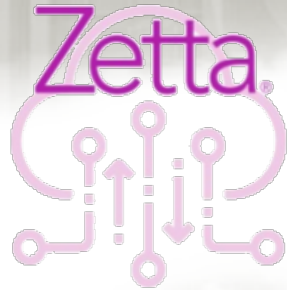
- **Built on HTML5**
 - **Operates on any browser on any device**
- **Configurable module based interface**
 - **Playout**
 - **Schedule**
 - **Library**
 - **Voice Tracking**
 - **System Monitor**

Secure

- **Built on AWS Best Practices for Security**
- **Secure API in an isolated environment**
- **Files do not have executable rights**
- **Files are sandboxed with no visibility to virus discovery**

Configurable Audio Distribution

- **Stream Host**
- **Stream to a Host**
- **Multiple Streams**
- **Now Playing - Meta data supported**
- **AAC or MP3 to 128Kbps**



Stream to Receiver

Stream to Web Host

System Monitor

System-Monitor							
Station	Status	Player	Sequencer	Actions			Deployments
8. Zetta Internet Split	Online	Down	Down	Redeploy	Take Offline	Stream	
7b. Zetta FM Split South	Online	Down	Down	Redeploy	Take Offline	Stream	
2. RCS TOP 40	Online	Down	Healthy	Redeploy	Take Offline	Stream	[Player] Created: August 10, 2019 Version: 1.0.0-staging-55 [Sequencer] Created: August 10, 2019 Version: 1.0.0-staging-55
5. Zetta Split Master	Online	Down	Down	Redeploy	Take Offline	Stream	
6. RCS Hot Country	Online	Down	Down	Redeploy	Take Offline	Stream	
4. RCS Alternative	Online	Healthy	Healthy	Redeploy	Take Offline	Stream	[Player] Created: August 10, 2019 Version: 1.0.0-staging-55 [Sequencer] Created: August 10, 2019 Version: 1.0.0-staging-55
1. RCS Hot AC	Online	Healthy	Healthy	Redeploy	Take Offline	Stream	[Player] Created: August 10, 2019 Version: 1.0.0-staging-55 [Sequencer] Created: August 10, 2019 Version: 1.0.0-staging-55
3. RCS Classic Rock	Online	Healthy	Healthy	Redeploy	Take Offline	Stream	[Player] Created: August 10, 2019 Version: 1.0.0-staging-55 [Sequencer] Created: August 10, 2019 Version: 1.0.0-staging-55

On-Air with Schedule and Voice Tracking

The screenshot displays the ZettaCloud interface, which is used for managing broadcast schedules and voice tracking. The top section shows the current broadcast status as 'On-Air' and 'Auto Mode'. Below this, a list of scheduled events is shown, including songs like 'I Like Me Better' by Lauv and 'Walk The Moon' by Walk The Moon, as well as news segments and ZettaCloud-specific content.

The bottom section features a 'VoiceTracker' window, which is used for monitoring and recording voice tracks. It displays a waveform and a 'Ready to Record' indicator. The interface also includes a 'Playlist' table with columns for Airtime, Event, Length, Intro, Status, Chain, and Skip.

Airtime	Event	Length	Intro	Status	Chain	Skip
7:00:00	Promises - Calvin Harris & Sam Smith	03:33	:01	Ready		
7:03:26	Unrecorded Voice Track	:00	:00	Ready		
7:03:36	Classic - MKTO	02:55	:13	Ready		
7:06:18	Be Alright - Dean Lewis	03:12	:04	Ready		
7:09:27	Live News VT 3	:00	:00	Ready		
7:09:27	Nevermind - Dennis Lloyd	02:36	:00	Ready		
7:12:10	DRY Seamless Integrates ZETTA	:08	:00	Ready		
7:12:01	Rather Be - Clean Bandit	03:47	:16	Ready		
7:15:45	Finesse (Edit) - Bruno Mars	03:28	:04	Ready		
7:20:00	Exact Time Marker	20:00	:00	HIT		
7:19:11	Spot Block	00:17	:00	Ready		
7:19:24	Zetta High Tech Zetta2GO 2	:17	:00	Ready		

Voice Tracking

The screenshot displays the Zetta Cloud VoiceTracker interface. At the top, the application name "Zetta Cloud" is visible, along with user information "Nate Mumford" and a "Logout" button. The main navigation bar includes "VoiceTracker", a date and time selector for "September 10, 7:00 PM", and buttons for "Home", "Mode", and "Settings". A dropdown menu on the right shows "1. RCS Hot AC".

The central area features a large waveform visualization for the track "Calvin Harris & Sam Smith / Promises". A vertical dashed green line indicates the current recording position. Below the waveform, a red bar displays "Ready to Record" and a large orange digital timer showing "0:00:0.0".

At the bottom, a track list shows "Calvin Harris & Sam Smith / Promises" and "MKTO / Classic". A "Ready to Reco" button is visible between the tracks. The bottom-most section contains a set of playback controls: a left arrow, a play button, a red stop button, a square button, a save button, and a right arrow.

Audio Library

Layout ▾ Config ▾ Zetta Cloud Nate Mumford [Logout](#)

Library ▾ [Add Song](#) [Delete Song](#) Search... [Settings](#) All Stations ▾

Song Spot Link Voice Track Quick Record Show Mini-Logs Interviews Sound effects Cue Point Demo David's jingles Backgrounds Stingers Split Jingles Live Reads

Title ▾	Artist	Length	Segue
74-75-Chip Mix	The Connells	04:38	04:20
1-800-273-8255	Logic	04:10	04:08
1950	King Princess	03:45	03:41
2U (feat. Justin Bieber)	David Guetta	03:14	03:06
2U (feat. Justin Bieber) (copy)	David Guetta	03:14	03:07
7 Years	Lukas Graham	03:58	03:52
90's Country	Walker Hayes	02:52	02:49
A Day In The Life	The Beatles	05:33	04:27
AFN Test	Logic	04:10	04:08
Ahead Of Myself	X Ambassadors	03:43	03:34

Items per page: ▾ 100 Page 1 / 6 [Assets \[1 - 100\] 593](#)

Tomorrow ...

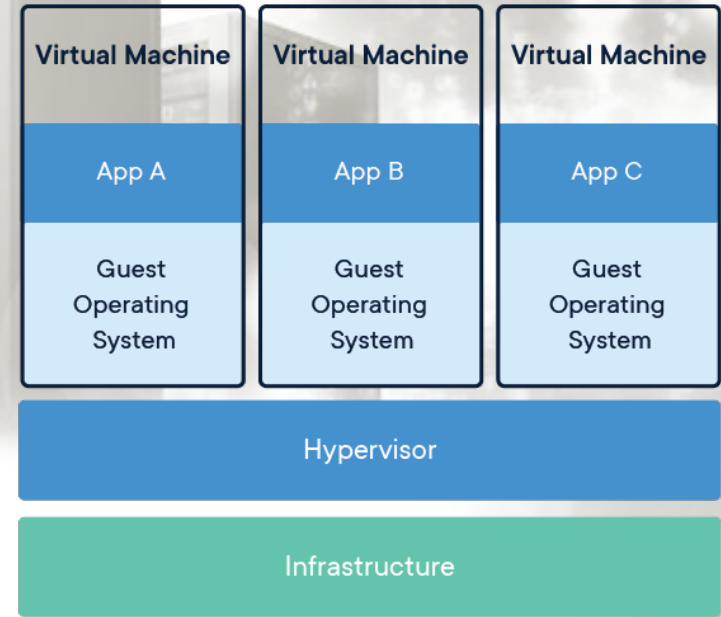
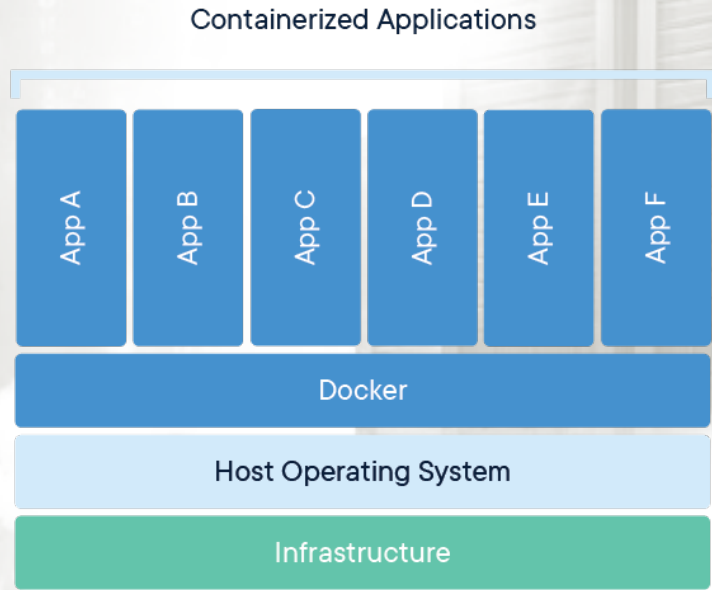
- **2nd Generation**
- **Full function cloud based commercial radio automation**
- **Live Mic audio**
- **Both Streaming and a Distributed playout deployment with container architecture**

Containerization

- **Containers** are often compared to Virtual Machines since both of them allow multiple types of software to be run in contained environments.
- Virtual Machines (VMs) are an abstraction of the hardware layer
- **Container** is an abstraction of the application layer
- A Docker container image is a lightweight, standalone, executable package of software that includes everything needed to run an application

CONTAINERS RULE

Containerization

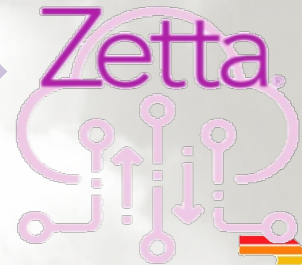


Distributed Playout Architecture

- **Containerization enables application function mobility**
 - **Playout Containers can be embedded in devices**
 - **Sound Processors**
 - **Transmitters? ... why not!**
- **Controlled from the Cloud**



Cloud Based control of embedded Playout



Cloud Centralization ... Near Future

- **Operational Cost Savings**
- **Improved programming control**
 - **Integration with other Cloud applications**
 - **Selector Cloud – Music Scheduling**
 - **Aqira – Traffic**
- **Best programming and on-air talent available to all markets from any market or location.**
- **Flexible and Agile program delivery Options**
 - **Split Feed**
- **Centralized Programming**
- **Centralized Production**
- **Reduced Facilities and Maintenance Costs**

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Thank you

Questions ?

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