

AUΣISH

Musician Map: visualizing music collaborations over time

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In this paper we introduce MusicianMap, a web-based interactive tool for visualizing relationships among popular musicians who have released recordings since 1950. MusicianMap accepts search terms from the user, and in turn uses these terms to retrieve data from *MusicBrainz.org* and *AudioScrobbler.net*, and visualizes the results. MusicianMap visualizes relationships of various kinds between music groups and individual musicians, such as band membership, musical collaborations, and linkage to other artists that are generally regarded as being similar in musical style. These relationships are plotted between artists using a new timeline-based visualization where a TimelineNode, which allows the visualization of an evolving artist, is used to represent an artist. MusicianMap allows the user to pursue social trend queries such as “Do Hip-Hop ar

1 INTRODUCTION

In this paper we introduce MusicianMap, a web-based interactive tool for visualizing relationships among popular musical artists across time and band membership. Our data is drawn from the popular online databases *MusicBrainz.org* [24] and *AudioScrobbler.net* [3]. MusicBrainz is a user-maintained community database of *metadata* about music recordings. Music metadata is information such as the artist name, the release title and the list of tracks that appear on a release. The AudioScrobbler system is a database that tracks listening habits and uses statistical reasoning to generate information about *similarity* of musical genre and taste. Thus these sources contain data about popular music recordings from around 1950 onward, but do not explicitly provide information about collaborations between artists or about the progression of their careers and how they intersect across types of music and time. The goal of the tool described in this paper was the exploration of these artistic collaborations: a social network of artists and groups [19] derived from their products (i.e. recordings) and mapped onto dimensions of *similarity* (type of music), *association* (membership in a group, if the group is the primary artistic unit) and *time* (progression of artist career and group longevity). The challenge we face is that the kinds of visualization tools or techniques typically applied to these types of information are quite visually disparate and simply combining them results in displays of unusable complexity.

The types of data we are interested in examining are as follows: the individual membership in a band; the recordings released; the time period

format.

A number of other tools have explored the use of scatterplots and node-link graphs to represent the connections between recordings or songs, such as [4][5][8]. These techniques typically use this approach to show similarity along some aspect, critical for music recommender systems. Crampes et al. developed a concept mapping technique for visualizing individual recordings from a musical artist [4]. They also described a technique for managing interaction with the various abstract representations that supported their music visualization. Donaldson and Knopke developed a music recommendation system that displays a scatterplot of songs that have been selected out of a database of user's playlists [5]. Songs are viewed as being more related the more often they appear together in user's playlists. The authors apply multidimensional scaling to the matrix of song-to-song links to generate a 2D cluster scatterplot of song relatedness. Scholz has developed a javascript-based visualization of musician data that plots recordings as nodes and edges as relationships between recordings, such as the same song in each recording, or the same person in two groups, among other relationships [8]. Yensen's Hubmed system displays node-link diagrams that display AudioScrobbler data, where nodes are music acts and links are derived from AudioScrobbler's similarity data [10]. Musicplasma has a similar search facility that plots bands as nodes, and uses link color to indicate the kind of relationship between entities, such as individual membership or similarity [11].

Another approach to the task of recommending new music is to analyze the music itself (see Scaringella [12] for a recent survey). For example, Lamere and Eck use music similarity functions to locate nearby music to the user's interest and plot similar items in 3D [7]. The DataBionic Music miner [13] classifies music using a self-organizing map and plots music using a fanciful geographic metaphor that the user may browse and use to compose playlists.

The task that these systems are aimed at supporting is the recommendation of music that is similar to the music that has been entered as a search term. This task has an obvious commercial impact in that a system will presumably prompt a user to buy music by enabling the user to find more music which he/she may like.

However, the kinds of tasks we are interested in supporting involve the exploration and discovery of aspects of the *social environment* of commercial music through the use of music metadata. In addition to the more-like-this question, music metadata can contain sufficient information to analyze the careers

of individual musicians, and through the sampling of metadata, can help broader queries like “Do Hip-Hop artists collaborate differently than Rock artists?” Gleiser begins to explore similar questions of collaboration through his visualization of the community of jazz artists (Figure 1), where each node represents a musician, and each link represents a shared band membership [19]. Rather than explore the similarity of music or artists from the perspective of choosing something related, however, Gleiser’s work explores the social environment of jazz musicians and is one example of a *social network*.

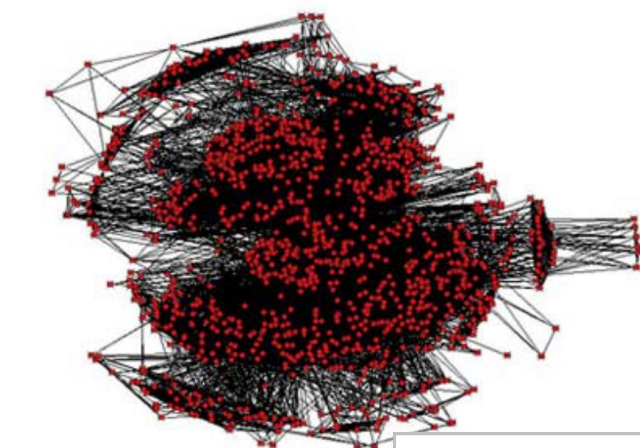


Figure 1. Visualization of the common musicians [1]

2.2 Social network visual



Figure 2. Vizster social net

Many of the standard approaches to visualizing some form of relation are based on the node-link graph and are more appropriate to the domain of social network visualization. There are many variants of social network

on the omitted role. For instance, if a link has a weight of two in the base network (e.g. one link with the role “producer” and one link with the role “engineer”) and the role-specific network without producers is going to be created, the link is not cut but its weight is decreased by one.

4. Network Analysis

Since both one-mode projections of the collaboration networks provide different views on the dynamics and structures of the collaboration network, both projection networks are analyzed in detail in this section. For instance, the nodes in the album network represent albums or teams consisting of at least one collaborator. Thus, this one-mode projection indicates the dynamics between teams in the collaboration network. The collaborator roles with the biggest impact on the connectivity of the album network are those that participate in different teams and, thus, establish the most bridges between the teams.

On the contrary, nodes in the social network represent the actual collaborators. Hence, this one-mode projection indicates social structures and dynamics. Each team or album in the album network is represented by a clique in the social network, since all collaborators of an album are interconnected to the other collaborators of the album. The impact of the collaborators roles on the social network is affected by two components: (1) the number of collaborators representing the particular role and (2) the number of bridges established by the collaborator.

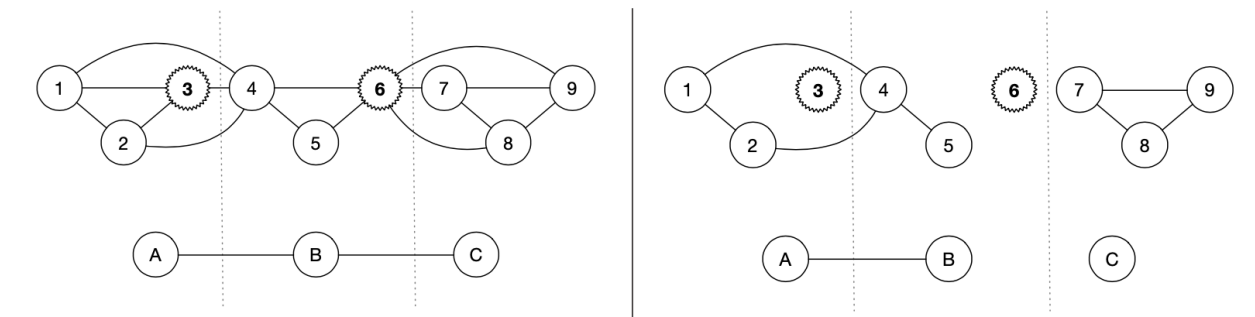


Figure 2: Different effects of omitting the connections of one collaborator role onto both one-mode projections of the collaboration network. The networks on the left represent the base network where no connections have been omitted. The upper networks represent the social network, whereas the lower network the album network.

COLLABORATION NETWORKS IN THE MUSIC INDUSTRY

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COLLABS

of an artist



Taylor Swift

2008

2021

Colbie Caillat

"Breathe"

FEARLESS – 2008

Bon Iver

"Exile"

FOLKLORE – 2020

Big Red Machine

"Birch"

HOW LONG DO YOU THINK IT'S GONNA LAST – 2021

the National

"Coney Island"

EVERMORE – 2020

Phoebe Bridgers

"Nothing New"

RED (TAYLOR'S VERSION) – 2021

Dixie Chicks

"Soon You'll Get Better"

LOVER – 2019

John Mayer

"Half of My Heart"

BATTLE STUDIES – 2009

Haim

"No Body, No Crime"

EVERMORE – 2020

Ed Sheeran

"Everything Has Changed"

RED – 2012

AUDISH

EXPAND YOUR MUSICAL TASTE

View connections between artists/albums/songs

Listen to new music with links to streaming services









Map and share your musical taste

Add audio dishes to your musical courses

SOURCES / API'S

Connect like Moderat

AUDISH



					
					

INSPIRATION

[View ingredients and see new foodpairing options](#)



Flexibel creëren met recepten als bouwstenen

 Gastronomixx		PRODUCTPASPOORT	
 <p>Naam product Paddenstoel</p>	Familie	Engelse naam	
	Paddenstoel	Mushroom	
	Seizoen	Franse naam	
	Gehele jaar	Champignon	
	Voedingswaarde		
	Vezels, eiwit		
	Bewaaradvies		
	1-4°C, 1-3 dagen		
<<<<<<<<<<<<<<<<<<<<<<<<<<<<<PADDENSTOEL<<<<<<<<<<<<<<<<<<<<<<<<<<<<			



Gedroogde gerookte worteltartaar



Krokant van ge-
rookt spek met
chocolade, anijs e...



Zwarte knoflookparels



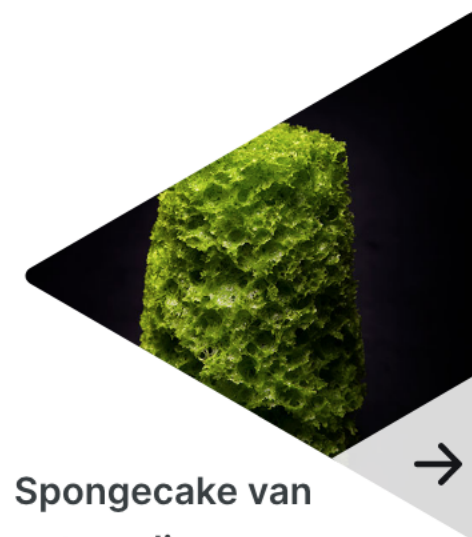
Macaron van zonnebloempitten



Sous vide gegaarde
inktvis met dragon
en citroen



Rode wijnsaus



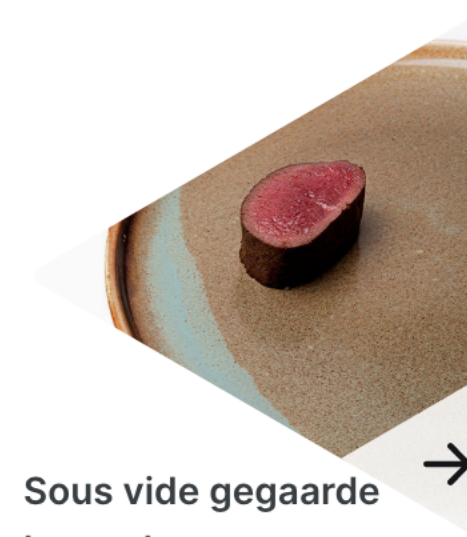
Spongecake van peterselie



Espuma van
citroentaart



Ganache met hazelnoot



Sous vide gegaarde
hertenhaas



Olie van pompoen



**100% plantaardige
demi-glace**



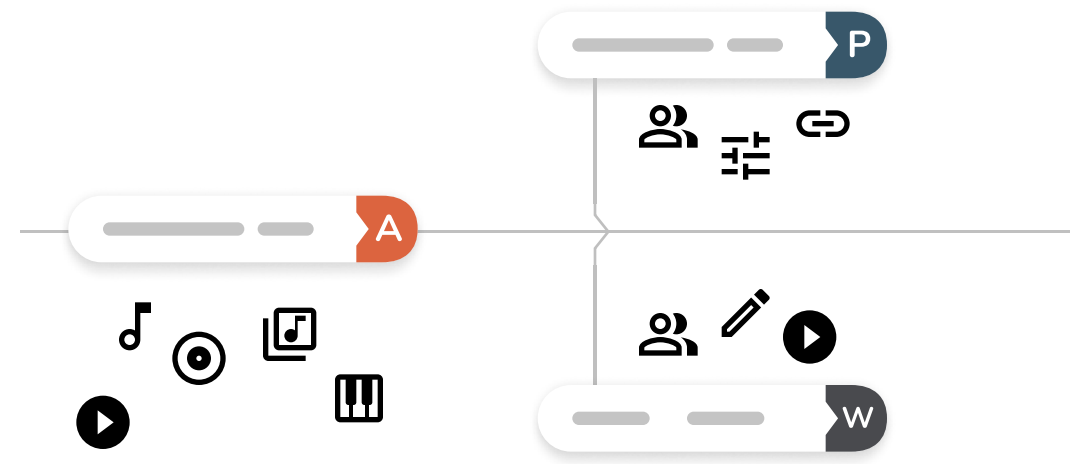
Building blocks for chefs.

Het geheim van perfecte smaakcombinaties.

AUDISH

HOW TO CONSUME

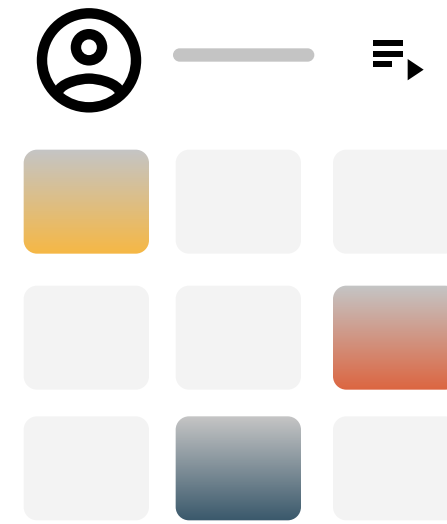
3 killer queen features...



Timeline

DIVE INTO A NEVER-ENDING DINNER

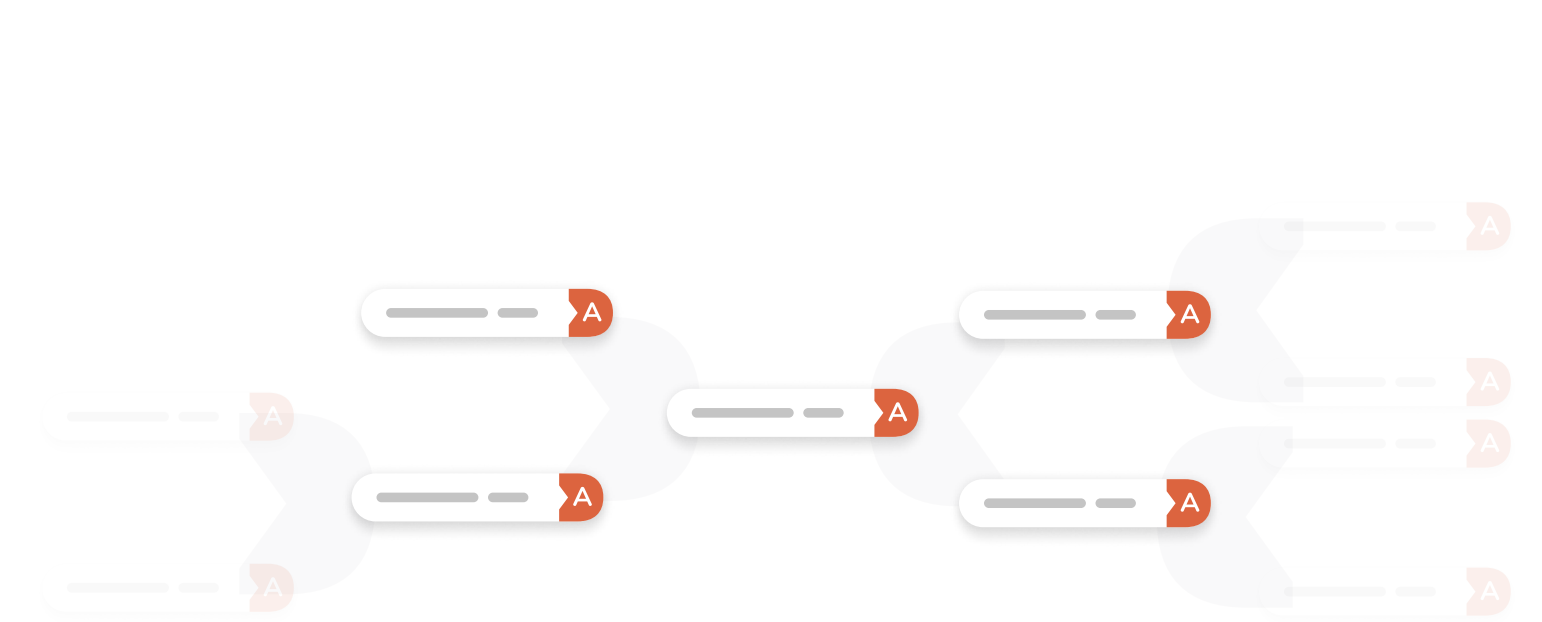
View timeline of artist/bands based on collabs, songs, albums, label or genres.



Collab disco(very)

PLAY COLLABORATION PLAYLIST

Stay true to the original artist and play collaborations of close ties. Niche radio for everybody without any hassle.



The artist dish

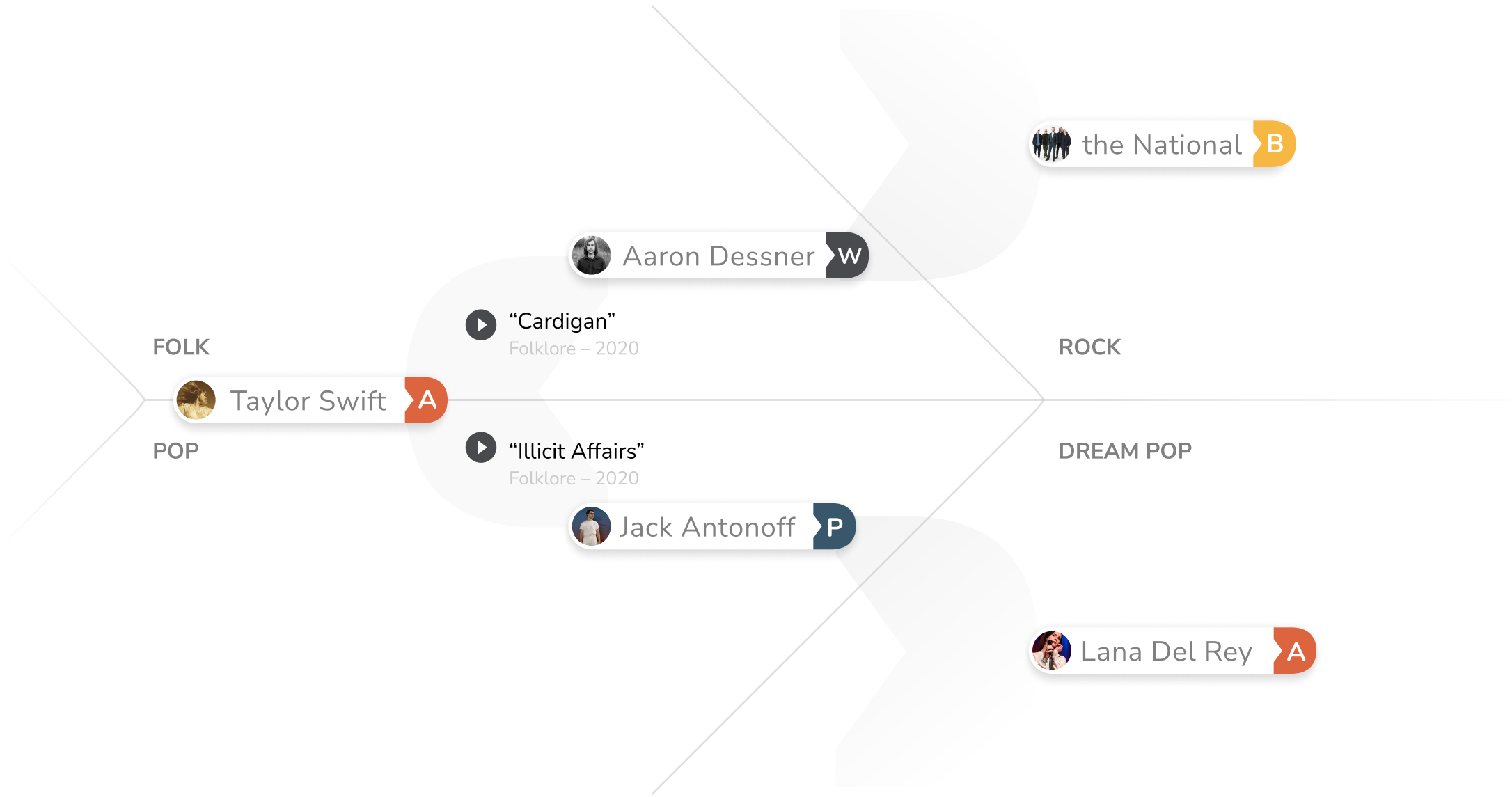
VIEW THE MUSIC MAP AND UPGRADE
YOUR BIRTHDAY TRIVIA FACTS

Stay true to the original artist and play collaborations of close ties. Niche radio for everybody without any hassle.

The artist dish[®]

“LIFE DID NOT TAKE OVER THE WORLD BY COMBAT,
BUT BY NETWORKING.”

View all the collaborations of
musical ties and start listening



Types



Artist



Band



Producer



Writer

Genres

FOLK POP ROCK

DREAM POP

Labels



Republic



RCA



Fueled by Ramen



Taylor Swift

ARTIST

COLLABS

MORE FROM LABEL

ARTIST DISH



PLAY COLLABS PLAYLIST

HOW DEEP IS YOUR LOVE?

OF THE DATA MODEL

WHAT

Song

Artists/band ∞

Producer ∞

Album ∞

Date of Release

Label

Album

Songs ∞

Date of Release

Producer

Songs ∞

Artist/band

Songs ∞

Formation/artists (period's) ∞

Genre

Meta

Box of chocolates

HOW

Smart

Latest database tricks with the power of Elasticsearch and Redis

Groupies

Our service worker groupies will be autogenerating dishes and serving it realtime to the hungry user

Melomaniacs

We have a abnormal fondness of music, let's rock this startup boat!



The music lover at 22:15 on the couch while using Shazam and recognizing Nils Frahm - Them while watching The New Pope.

AHA... NILS FRAHM!

LET'S SEE MORE CONNECTIONS...

AUDISH

Nils Frahm

A

Them from Music for the Motion Picture Victoria 2015

Collabs

Olafur Arnalds

Stare (Single) 2015

Kiasmos

Kiasmos (Album) 2014

Erased Tapes Records

Janus Rasmussen

Adam Wiltzie

A Winged Victory for the Sullen

Dustin O'Halloran

VIEW PLAYLIST

VIEW ARTIST

NOORDERSLAG 2011

COLLABORATIONS AND NETWORK EFFECTS

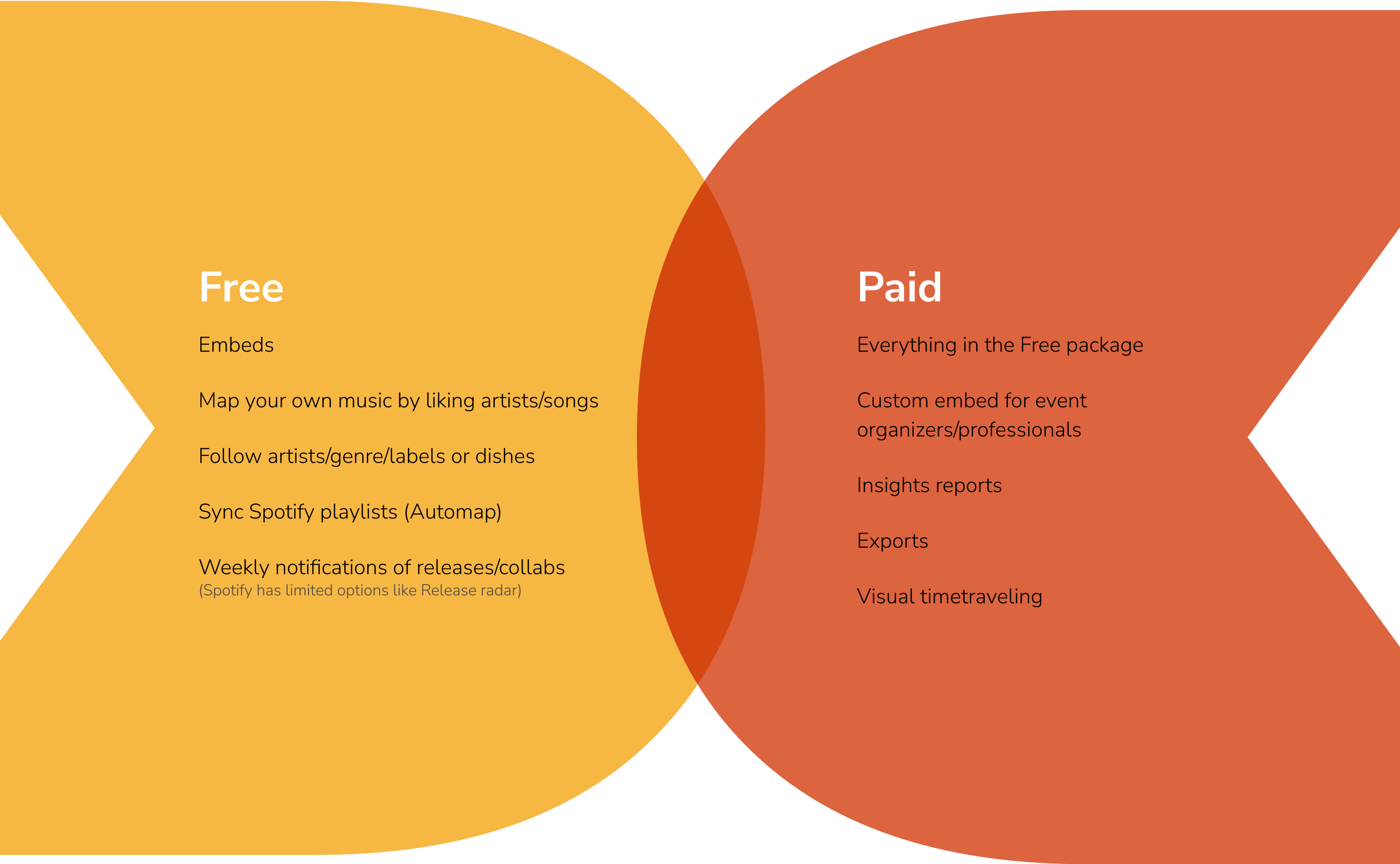
✓ PRESENT ON THE EVENT



MONEY FOR NOTHIN' AND YOUR CHICKS FOR FREE

Business models

AUDISH



AUDISH

Additional music notes
and visual branding cue's.

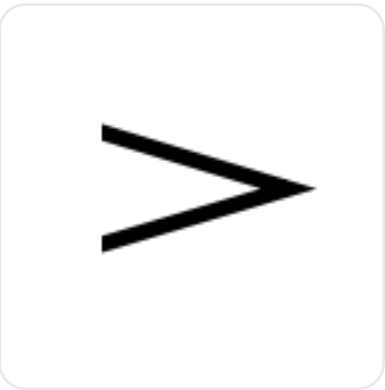
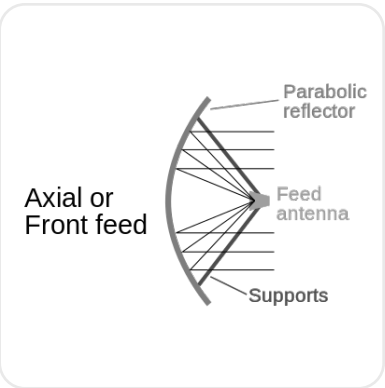
Audi

Latin: Listen

Dish

part of meal, synonym: container

Satellite dish



Diminuendo

Also decrescendo

A gradual decrease in volume. Can be extended in the same manner as crescendo.

Jack Black (Tenacious D – best song in the World) reference:

Jack Black's version of the word audition used to shorten speaking time and sound super cool and hip. See also condish.
"Nailed the audish."

Variable pedal mark

More accurately indicates the precise use of the sustain pedal. The extended lower line tells the player to keep the sustain pedal depressed for all notes below which it appears. The shape indicates the pedal is to be momentarily released, then depressed again.



Deep Dish

Based in Washington, D.C., it is well known for providing house or dance remixes of tracks of famous artists such as Madonna, Janet Jackson, Cher, Stevie Nicks and Gabrielle, and for its live DJ sets. Its collaborations and remixing abilities first came to attention with its seminal 1995 remix of De'Lacy's "Hideaway". Deep Dish's album Junk Science was released in 1998. The duo was nominated for a Grammy for their remix of Madonna's "Music", and won a Best Remixed Recording Grammy for its remix of Dido's "Thank You".[2] In 2006, the DJs disbanded and moved to solo careers.

AUDISH

Music Cookbook