W2SO MEMBERSHIP DATABASE

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EXECUTIVE SUMMARY

- Purpose: Modernize and scale LARC's data management system

- Key Impact: Secure membership tracking, streamlined dues collection, and enhanced communication

- Platform Transition: From Microsoft Access → Microsoft SQL Server Future-ready features: Triggers, transaction safety, and real-time reporting

ABOUT THE LANCASTER AMATEUR RADIO CLUB (LARC)

- Established in 1987 in Buffalo, NY

- Over 150 active members

- Community-focused: Events, emergency management, and education

- ARRL Special Service Club since 2002

- Transitioned from hobby-based tracking to operational data needs

WHY MODERNIZATION WAS NEEDED

- Legacy system lacked scalability and security
  - Microsoft Access Database to convert to Microsoft SQL Server
- No automation for dues or membership tiering
- Limited accessibility for officers and volunteers
- New solution introduces automation, accuracy, and compliance
  - Improvements we're making
    - Badges for membership length
    - Managing annual dues

Database Modeling

Business Needs :

- Membership management system
- Need a system for collecting dues (membership expiration date)
- Improve communication with contact information for group members
- Track leadership roles
- Assign and track club issued keys
- Track licenses
- Volunteer coordination (field day events, hamfests, committees)

Goals

- Ensure data integrity and accuracy
- Support membership management
- Support membership engagement
- Support volunteer coordination
- Ensure scalability for future growth of the organization

MEMBERSHIP DATABASE ENTITIES

Members

Contact Info

Licenses

Membership Types
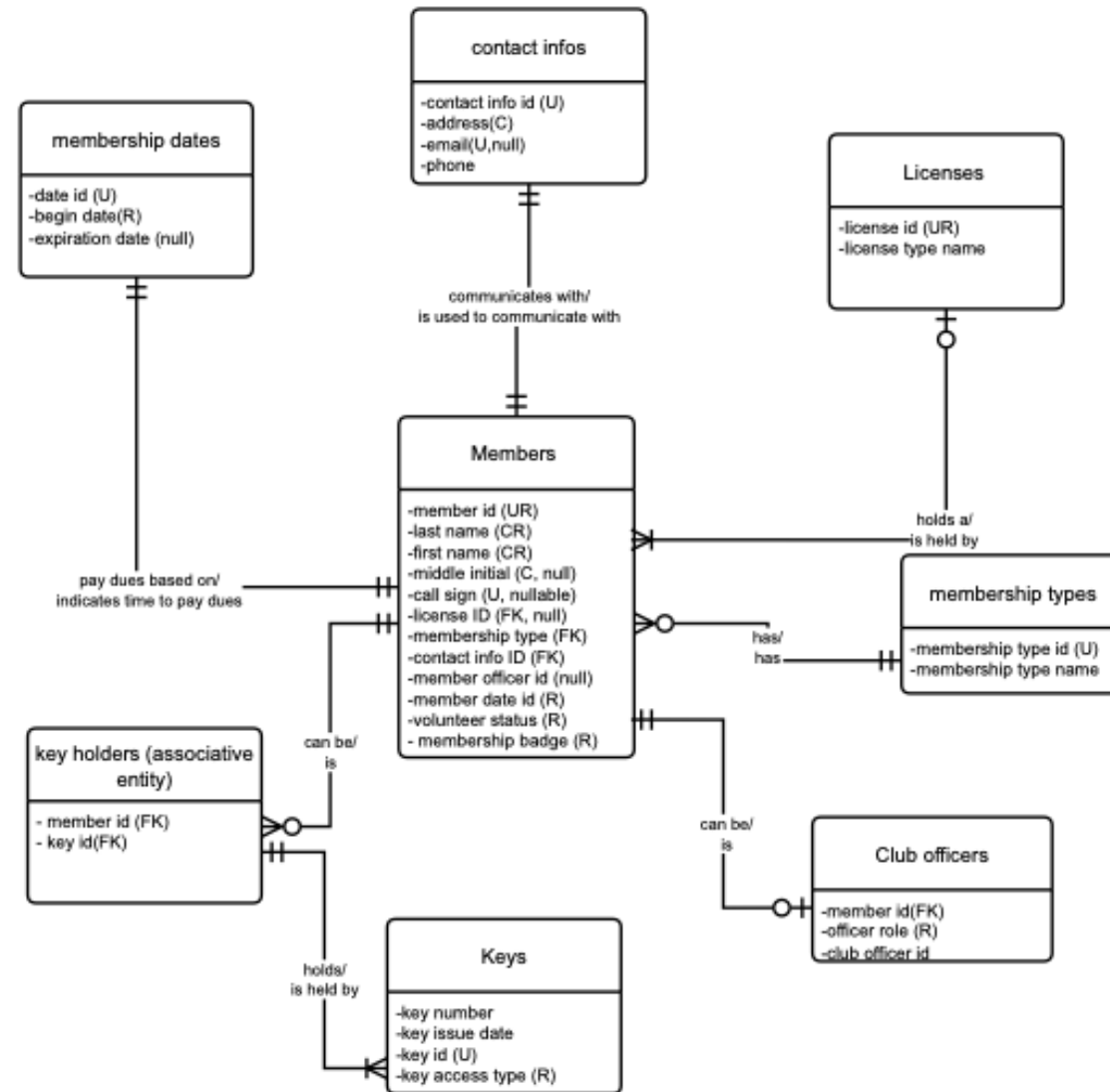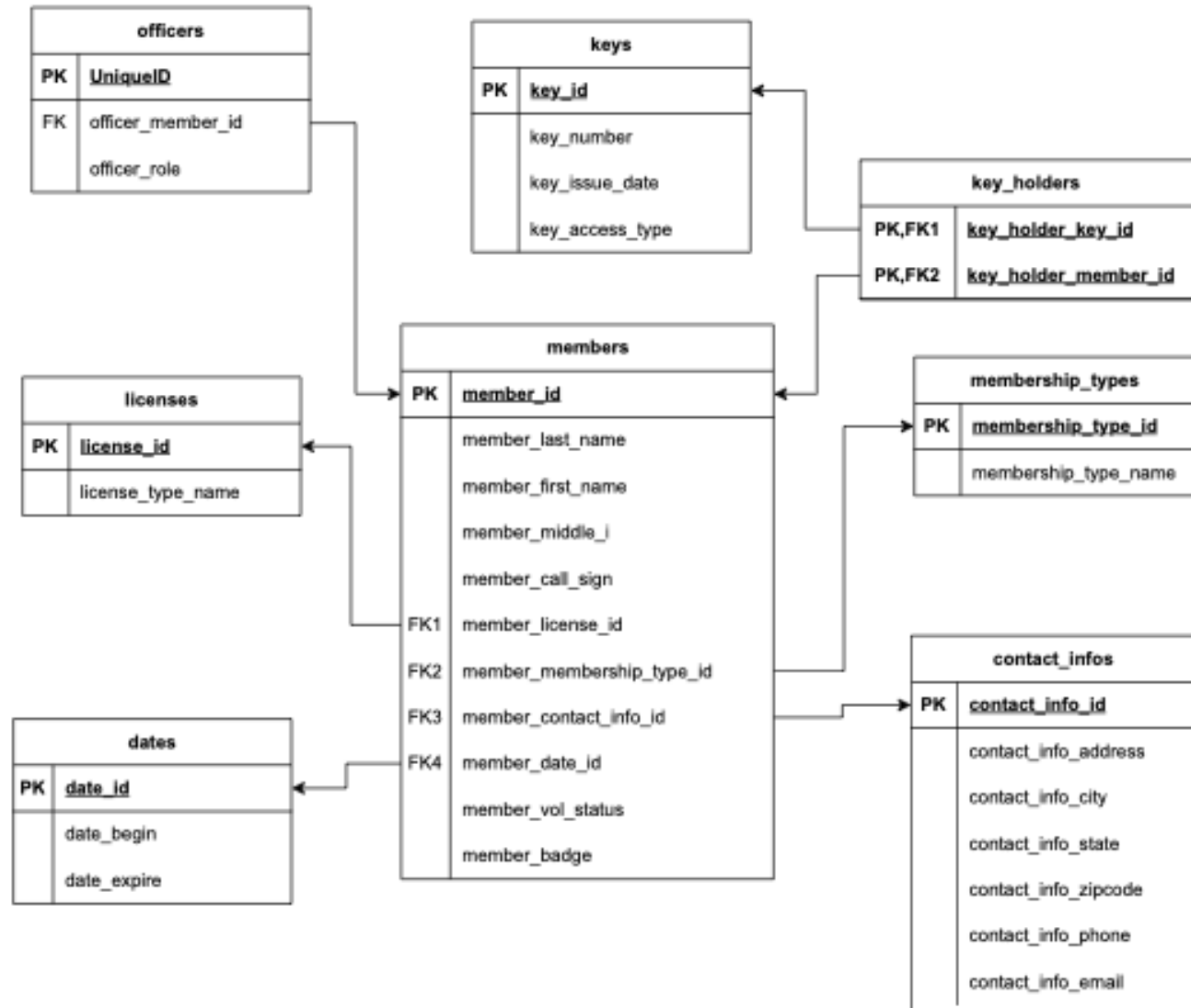
Officers

Keys

Key Holders

Dates

TECHNICAL ENHANCEMENTS AT A GLANCE

- SQL Server-based architecture

- Membership tier recognition (Bronze, Silver, Gold)

- Created Rosters:

  - Officer

  - Key Holder

  - Contact information

CONCEPTUAL MODEL

LOGICAL MODEL

EXAMPLE QUERIES

- Query for Members Pending Call Sign

- Query for Keys Issued to Club Members


```
314    --query for members pending call sign
315    SELECT
316        member_id,
317        last_name,
318        first_name,
319        middle_initial,
320        call_sign,
321        license_id,
322        membership_type_id,
323        contact_info_id,
324        membership_date_id
325    FROM Members
326    WHERE call_sign LIKE 'pending';
327    GO
328
```

Results   Messages

	member_id	last_name	first_name	middle_initial	call_sign	license_id	membership_type_id	contact_info_id	membership_date_id
1	10	Belfour	Daniel	A	pending	2	3	136	2
2	37	Fedele	Anthony	J	pending	2	3	120	2
3	42	Foley	Kevin	M	pending	2	3	135	2
4	43	Forhand	Thomas	H.	pending	2	3	20	2
5	58	Haq	Mahbubul	NULL	pending	2	3	82	2
6	99	Penska	James	R	pending	2	3	51	2
7	107	Reed	Robert	A	pending	3	3	59	2
8	118	Schellard	Douglas	B	pending	2	3	101	2

```
346    --query for Keys issued from Membership Roster
347    SELECT
348        Last_Name,
349        First_Name,
350        Middle_Initial,
351        Call_Sign,
352        License_Class,
353        Key_Number,
354        Key_Issue_Date
355    FROM [dbo].[Membership Roster]
356    WHERE Key_Number IS NOT NULL;
357    GO
```

Results   Messages

	Last_Name	First_Name	Middle_Initial	Call_Sign	License_Class	Key_Number	Key_Issue_Date
1	Buono	Ryan	M.	KD2YXS	Extra	24	2023-12-28
2	Calianno	Luke	A.	N2GDU	Extra	RR2	2019-10-24
3	Curtin	Charles	NULL	W2EM	Extra	11	2019-03-28
4	Delamater	Robert	NULL	AA2ZW	Extra	12	2019-03-28
5	Ernst Jr.	Martin	NULL	KD4HLV	Extra	RR7	2021-01-16
6	Glor	James	NULL	N8GXR	Extra	13	2019-03-28
7	Griesbaum	Genevieve	NULL	KD2OHD	Technician	1	2019-03-28
8	Griesbaum	Christopher	M	W1OCK	General	Original	2019-03-28
9	Hutchinson	Karl	NULL	W2KTH	Extra	FD2	2024-05-30
10	Kaczmarek	George	J.	KD2LLM	General	9	2019-03-28
11	Klimaszewski	Edward	NULL	AB2HW	Extra	15	2019-03-28
12	Ladd	David	NULL	W1LAX	Technician	16	NULL
13	Lawson	Charles	NULL	KC2BLH	General	RR8	2022-06-30
14	Maxwell	John	NULL	W2JM	Extra	18	2019-04-22
15	Pawlowski	Adam	NULL	KC2YQF	General	RR6	2019-11-21
16	Piotrowski	Steven	NULL	AG2AA	Extra	RR4	2019-10-24

ROADMAP AND SCALABILITY

- Importing roster information into Database
  - o Identifying queries for the owners for desirable information
  - o Test queries
- Importing current roster into database to consider adjustments that need to be made
- Updating Project Charter
- Working on Technical Report

- Real-time member portal

- Volunteer hours tracking

- Integration with payment processors

- Enhanced analytics for membership growth

MEASURABLE OUTCOMES

- Increased data integrity and automation

- Reduced manual updates

- Improved compliance with radio regulations

- Scalability to 200+ members and beyond

FUTURE PLANNING

- Addition trigger for members paying annual dues

- Update of initial membership dates.

- Update volunteer willingness statues

- Automated dues tracking using triggers

- Role-based access for officers

- Reporting dashboards

Ideas for additions to database:
- Emergency Contact Information
- Member of the Year
- Rookie of the Year
- Query of geographical information
    - Transferrable to another program for mapping

THANK YOU !